

Journal

OF THE
AMERICAN VETERINARY
MEDICAL ASSOCIATION

Vol. 139

July 1, 1961

No. 1



1961 Convention Issue

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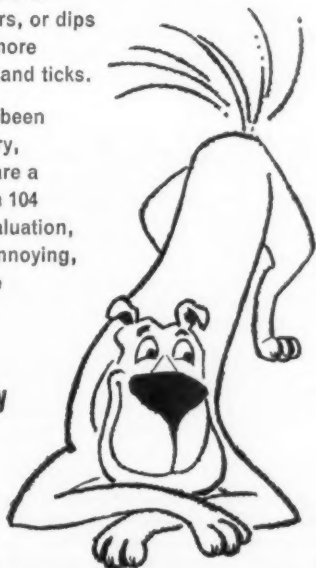
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Correspondence

Plastics, Gnotobiotics, and Asepsis

May 4, 1961

Dear Sir:

Your editorial on "Plastics, Gnotobiotics, and Asepsis" [May 1, J.A.V.M.A., page 506] was very interesting but inaccurate in at least one respect. You do not and cannot obtain a greater percentage of live, disease-free pigs by cesarean techniques than by hysterectomy. All pigs alive at the time of surgical intervention are potential live pigs by either method. In each instance, pigs too weak to have survived natural birth may be saved. These pigs face the same hazards for continued survival regardless of their surgical means of birth. Thus, the use of the word "obtain" in your statement "By using the cesarean technique, the operator . . . is able to obtain a greater percentage of live, disease-free pigs" was an unfortunate choice. It is an opinion, perhaps a hopeful one, based on experience of a few people with a few litters of pigs.

Please do not misconstrue my comment to mean that I am opposed to use of the plastic bubble to obtain germ-free pigs. It is an ingenious device and will have many useful places in this rapidly moving field.

S/GEORGE A. YOUNG, D.V.M., *Chairman*
Department of Veterinary Science
University of Nebraska

[EDITOR'S NOTE: At the Conference on Application of Cesarean-Derived Animals to Disease Control in Livestock and Laboratory Animal Production held at Michigan State University last March, it was the opinion of at least 3 veterinarian participants, one an operator of a SPF laboratory and 2 engaged in SPF animal research, that a greater percentage of live, disease-free pigs were obtained using the cesarean technique described in the editorial than by the conventional hysterectomy method.]

Executive Board Report

May 20, 1961

Dear Sir:

I enjoyed reading "The AVMA Executive Board Acts" in the May 15th issue of the JOURNAL. I think this will do much to inform the general membership what the Executive Board is doing for organized veterinary medicine.

S/W. J. O'ROURKE, D.V.M., *Secretary*
Wisconsin V.M.A.

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THREE 1961 BOOKS

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Schalm — Veterinary Hematology

By OSCAR W. SCHALM, D.V.M., M.S., Ph.D.
Professor of Clinical Pathology, University of California
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By WILLIAM D. CARLSON, D.V.M., M.S., Ph.D.
Radiologist, College of Veterinary Medicine, Colorado
State University, Fort Collins

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Smith and Jones — Veterinary Pathology

By HILTON A. SMITH, D.V.M., M.S., Ph.D. and THOMAS C. JONES, B.S., D.V.M.
Head of the Department of Pathologist, Angell Memorial
Veterinary Pathology, Animal Hospital,
School of Veterinary Medicine, Boston; formerly Chief,
A. & M. College of Texas Veterinary Pathology Section,
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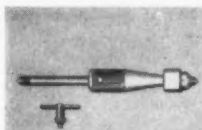
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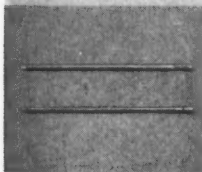
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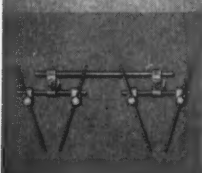
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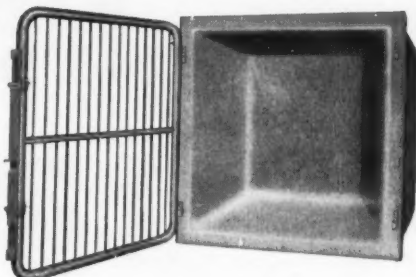
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FROM THE AVMA WASHINGTON OFFICE
J. A. McCallam, VMD
Brig. Gen. USA (Ret.)

NEW BILLS

Mosquito Control

H. R. 6805, Rep. Glenn (R., N.J.), and H. R. 7001, Rep. Auchincloss (R., N.J.)—Identical bills to provide for control of mosquitoes and mosquito vectors of human disease through research, technical assistance, and grants-in-aid to states on a 50-50 matching basis.

Barbiturate and Drug Regulation

S. 1939, Sen. Dodd (D., Conn.), and Wiley (R., Wis.)—To protect the public health by regulating the manufacture, compounding, processing, and distribution of habit-forming barbiturate and amphetamine drugs.

Tax Exemptions for Medical Research

H. R. 7294, Rep. Sibal (R., Conn.)—To amend Internal Revenue Code of 1954 with respect to income tax treatment of certain contributions to nonprofit medical research organizations, and to provide exemptions from certain excise taxes for such organizations. Under provisions of the bill, no tax would be imposed on any article sold to a nonprofit medical research organization directly engaged in continuous active conduct of medical research.

Tax Exemption for Retirement Incomes

H. R. 6781, Rep. Healey (D., N.Y.), and H. R. 6908, Rep. Santagelo (D., N.Y.)—Identical bills to amend Internal Revenue Code of 1954 to provide additional \$2,400 income tax exemption for amounts received as annuities, pensions, or other retirement benefits.

Social Security Exemption for Objectors

H. R. 6916, Rep. Clark (D., Pa.)—To exempt from social security insurance program those individuals opposed to participation in such programs on grounds of conscience or religious belief. Would require the individual to file written declaration with the Secretary of HEW and would be irrevocable when approved, with no benefit or lump-sum payment on the basis of wages or self-employment income.

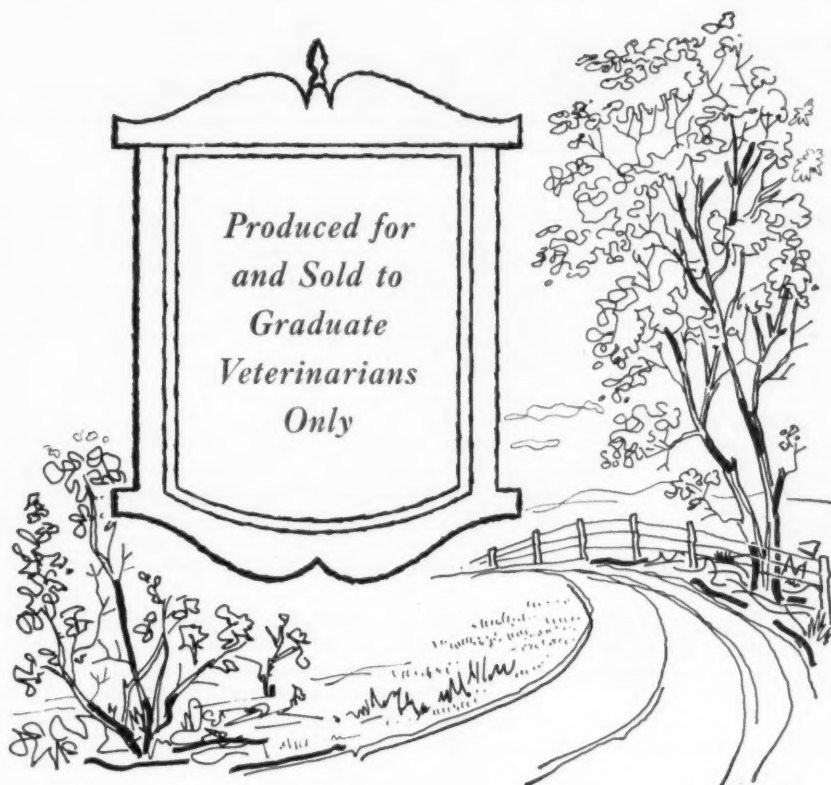
Private Benefit Plans in Lieu of Social Security

H. R. 7008, Rep. Fulton (R., Pa.)—To encourage use of private benefit plans in lieu of social security by providing that persons eligible for certain benefits under such plans shall not be entitled to social security benefits or subject to social security taxes.

FAO Contribution Limit

S. 1779, Sen. Fulbright (D., Ark.)—by request to amend Act authorizing appropriations for U.S. membership in United Nations Food and Agriculture Organization. Would provide such sums as required for payment by U.S. of its pro-

(Continued on adv. page 12)



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July 1, 1961

Washington News—continued

portionate share in the expenses of the Organization, the contribution not exceeding 33.33% of the Organization's total annual budget.

RESOLUTIONS

USDA Centennial

H. J. Res. 435, Rep. Cellar (D., N.Y.)—Provides for recognition of the centennial of the Department of Agriculture. Authorizes and requests the President to issue a proclamation designating 1962 as the centennial year and providing that the centennial be otherwise appropriately recognized and commemorated.

University Land-Grant System Centennial

H. J. Res. 436, Rep. Cellar (D., N.Y.)—Provides for recognition of the centennial of the establishment of the national system of land-grant universities and colleges (Morrill Act, July 2, 1862). Authorizes and requests the President to issue a proclamation recognizing the centennial and providing for suitable cooperation of Government agencies with land-grant universities and colleges during the centennial.

MISCELLANEOUS President's Address to Congress

The address of the President, delivered before the 87th Congress, May 25, 1961, concerning urgent national needs, may be obtained free by requesting House Document No. 174 from House Document Room, U.S. Capitol Building, Washington 25, D.C.

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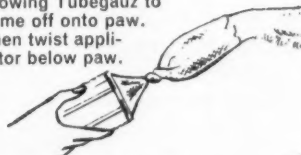
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July 1, 1961

13



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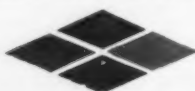
All veterinarians must face the fact that **biologicals are not the same**. Products vary from manufacturer to manufacturer and serial to serial. There are, so to speak, "peaks and valleys" in the antibody or antigen content from serial to serial and product to product. Even though all biologicals are government regulated, there are products marketed for the prevention or treatment of the same disease that prove to have a wide variation in potency.

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Diamond researchers feel that veterinarians should be permitted to select a product on the basis of potency identified by stated units of the contents of the product. Only a few veterinary biologicals on the market today are identified by a potency statement on the label or insert. **Diamond now has more than 30 standardized biologicals approved by the ARS.** (see panel at right) The potency of these products is specified by a Diamond CERTIGARD Standard statement on either the label or package insert.

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METHODS OF STANDARDIZATION

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and the antibody response elicited by actual modified live virus vaccinations.

CELL COUNTS are conducted on cultures used for bacterin production to assure a high antigenic content.

VACCINATION and **CHALLENGE** tests are performed to prove the high level of protection that can be expected in the field.

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POLY-VAC (Clostridium Chauvei Septicum Pasteurella Bacterin)

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B-VAC-A (Coli-Staphylococcus-Streptococcus Bacterin)

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NEO-VAC (Erysipelas Bacterin)

HEMSEP-VAC (Hemorrhagic Septicemia Bacterin)

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T.C.D. Canine Distemper Vaccine (T.C.O.)

Mink Distemper Vaccine

Feline Distemper Vaccine

**I.B.R. (Infectious Bovine Rhinotracheitis
Vaccine)**

RHINO-LEP (Infectious Bovine
Rhinotracheitis Vaccine and
Leptospira Pomona Bacterin)

Rabies Vaccine (Caprine Origin)

Rabies Vaccine (C.E.O.)

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Men, Animals, Equipment Move to Ames for Animal Disease Laboratory Opening

The move into the new National Animal Disease Laboratory at Ames, Iowa, is just about complete.

During the past few months, scientific personnel, laboratory equipment, files, a library, and animals have been sent from USDA headquarters in Beltsville, Md., to Ames, Iowa, for the opening of the laboratory July 1.

Particular care has been taken in the shipment of the animals to Ames. They will be used in the research projects conducted at the laboratory and must arrive in excellent condition.

For example, on May 23 a herd of breeding cattle, maintained free of disease for more than 20 years at Beltsville, was shipped to Ames. For the 27-hour trip, the 117 cattle were shipped in 8 specially designed railroad cars. Adequate ventilation with filtered air and air-conditioning was provided in the cars to maintain their health and minimize stress. The cars were thoroughly cleaned and disinfected to prevent any possible infection of the cattle by either disease organisms or parasites. The animals were fed and watered en route. A USDA veterinarian and several caretakers accompanied them.

Another shipment to the laboratory contained 2,500 guinea pigs which had been maintained disease-free at Beltsville for more than 30 years. They were transported in 3 air-conditioned, temperature-controlled trucks and accompanied by veterinarians and a supervisor.

Other animals moved by truck to Ames included 500 chickens, 60 rabbits, and a breeding herd of 25 hogs.

The \$16 million National Animal Disease Laboratory, authorized by Congress in 1956, is located on a 318-acre tract of land just north of Ames. It consists of 7 major buildings and 25 field buildings.

The laboratory has been designed for

maximum safety to personnel and elimination of hazards of cross-contamination of research projects. A safety program regulating personnel activities and all procedures required by research programs has been developed. Purpose of this program is to prevent transmission of animal diseases to personnel, prevent escape of animal diseases from the laboratory, and prevent entrance of diseases into the laboratory.

Eighty per cent of the facilities at Ames will be devoted to research on infectious disease of poultry and livestock; 20% will be devoted to laboratory services needed to support disease regulatory programs, such as disease diagnosis and the testing and standardization of biological products.

In addition to veterinarians specially trained for research, other scientific specialists working at the National Animal Disease Laboratory will include biochemists, physiologists, toxicologists, microbiologists, pathologists, and physicists.

Complacency Called Obstacle to Tuberculosis Eradication

A warning against complacency regarding the eradication of tuberculosis, whether in man or in animals, was sounded at the 57th Annual Meeting of the National Tuberculosis Association, May 22, in Cincinnati, Ohio.

Dr. W. W. Armistead (TEX '38), dean of the College of Veterinary Medicine, Michigan State University, gave the warning. Dr. Armistead spoke at the Public Health and Nursing session of the meeting.

Dr. Armistead called the campaign against tuberculosis in cattle a "success story," but added that it illustrates "the dangers of public complacency and inadequate research." The campaign was inaugurated in 1917 by the USDA with the tuberculin testing of cattle, followed by the slaughter of infected animals.

The incidence of tuberculosis in cattle dropped from almost 5% in 1917 to less than 0.2% in 1953, said Dr. Armistead, while simultaneously the incidence of tuberculosis of bovine origin in man "has declined until the once familiar human hunchback, tragic victim of spinal tuberculosis, has virtually disappeared from the American scene."

"However," he continued, "during the past several years the number of tuberculin test reactors among cattle has been increasing in spite of the earlier stages of the eradication campaign. With this rebound in the number of reactors has come recognition that the eradication of a widespread infectious disease becomes more difficult in the final stages; that public complacency is a growing obstacle as an eradication campaign proceeds; and that there is need for basic research on the tuberculosis organism before knowledge necessary to complete eradication will be available."

Foot Rot in Sheep Studied

The First National Conference for Foot Rot in Sheep was conducted in Lexington, Ky., May 10-11, 1961. Representatives of 23 states and 2 foreign countries were in attendance. The following facts were put forth at the meeting:

- Foot rot in sheep has caused a marked decline in sheep production programs.
- Foot rot must be differentiated from foot abscess and foot scald.
- Foot rot in sheep is different from foot rot in cattle. Foot abscess in sheep is similar to foot rot in cattle.
- The etiologic agent of foot rot in sheep is the fusiform organism, while the causative agent of foot abscess is usually a necrophorus type.
- Since the causative organism is an anaerobe, proper paring of feet and foot bathing are recommended. The organism will not live in soil for long periods of time.
- The carrier animal is the most important factor in transmission of foot rot.
- Foot rot is considered infectious and contagious; foot abscess is infectious but caused by puncture wounds.
- A more accurate means of reporting

foot rot is needed by the sheep industry.

- Education is needed both for the local veterinarians and sheep producers in instituting the treatments and control measures which have been demonstrated effectively in Montana and California.
- Proper understanding and utilization of therapeutic and control measures can control foot rot. Foot rot in sheep can be controlled and eradicated from a premise.

Dr. Harry Rubin Receives Award

The 1961 Eli Lilly Award, an honor for young scientists in the fields of bacteriology and immunology, has been presented to Dr. Harry Rubin (COR '47), professor of virology at the University of California, Berkeley.

Presentation of the award, consisting of a bronze medal and a \$1,000 honorarium, was made last April in Chicago at the annual meeting of the Society of American Bacteriologists.

The purpose of the award is to stimulate fundamental research in bacteriology and immunology in the United States and Canada by recognition of outstanding accomplishments by young individuals. Recipients must be less than 35 years of age on April 20 of the year the award is presented.

In an address before the society, Dr. Rubin reviewed his research over recent years which led to his selection for the award.

The work has been concentrated on the interaction between tumor viruses and cells and has been carried out mainly with the Rous sarcoma virus, which causes a highly malignant cancer in chickens.

Dr. Rubin developed a technique for growing the virus in chicken cells in the test tube. By this means, an experimenter can observe all stages of the cellular transformation to malignancy.

The method has also made it possible to assay with great precision the number of infective virus particles in infected cells and to analyze the relationship between virus growth and cellular cancer formation.

This analysis has suggested that the cellular change is the direct consequence of

virus multiplication and that the cell membrane is the structure most closely involved in the cancer process.

More recently, Dr. Rubin developed a method for detecting, in tissue culture, the leukemia viruses of chickens.

These viruses do not alter the cell in a recognizable fashion, but they can be detected because they interfere with the growth of Rous sarcoma virus.

Using this new detection technique, he has studied how leukemia viruses are transmitted from one generation of chickens to the next, how the virus is spread in the population, and how the host reacts to these ever-present infections.

In his present work, he is studying how congenital infection with chicken leukemia viruses prevents mobilization of the host animal's normal immunologic defenses.

After graduation and service with the U. S. Public Health Service and advanced study and research at the California Institute of Technology, Dr. Rubin joined the staff of the virus laboratory at Berkeley in 1958. That year, he won the AAAS-Anne Frankel Rosenthal Memorial Award for Cancer Research.

Animal Medical Center Lays Cornerstone

A ceremony to lay the cornerstone of the Animal Medical Center's new building at 62nd St. and the East River Dr., New York, N.Y., was held May 17.

Veterinarians attending the ceremony were Drs. Wayne H. Riser (ISU '32), past-president of the AAHA; Mark W. Allam (UP '32), dean of the School of Veterinary Medicine, University of Pennsylvania; George C. Poppensiek (UP '42), dean of the New York State Veterinary College, Cornell University; and Charles E. Fletcher (COR '31), president of the New York V.M.A.

The Animal Medical Center lists its aims as: (1) research into the nature of animal disease for the benefit of both animal and human health; (2) provision of the best possible treatment for sick animals; and (3) education of veterinarians in small animal practice and in comparative medical research and the dissemination of knowledge in this field.

Laboratory Animal Medicine Symposium Planned

The first of a planned annual series of symposiums on the diseases of laboratory animals will be held in Detroit, Mich., August 24, in conjunction with the annual convention of AVMA.

The symposium will be the first of its kind to be presented anywhere in the world. It will be held under the auspices of the AVMA section on research and was arranged by the American Board of Laboratory Animal Medicine.

The theme of this year's presentations will be "The Diagnosis of the Diseases of Laboratory Rodents." Veterinarians interested in the production, care, and use of laboratory animals are invited to attend.

Further information about the program may be obtained by writing to the American Board of Laboratory Animal Medicine, Argonne, Ill.

Dr. A. H. Wolff Sent to Rome

Dr. Arthur H. Wolff (MSU 42), assistant chief, Research Branch, Division of Radiological Health, U.S. Public Health Service, will work with the United Nation's Food and Agricultural Organization in Rome Italy, for a year.

Dr. Wolff will serve in the Atomic Energy Branch of FAO as a special consultant on radioactive materials in food and agriculture. As part of this assignment, he will set up training programs on radioactivity and food hygiene in coordination with the World Health Organization and the International Atomic Energy Authority.

Dr. Wolff has been a commissioned officer in the Public Health Service since 1946. During World War II, he served in Europe and the Far East. In 1950 and 1951, he took special graduate work in radiation physics and nuclear biology at Duke University and the Oak Ridge Institute of Nuclear Studies. Since that time, Dr. Wolff has worked exclusively on the public health aspects of ra-



Dr. Arthur H. Wolff

diation. One of his principal interests has been the effects of radiation on animals and foods.

Upon completion of his special assignment in Rome, Dr. Wolff will return to work with the Division of Radiological Health, U.S. Public Health Service, Washington, D.C.

Dr. O. J. Hummon Promoted

Dr. O. J. Hummon (OSU '30) has been named chief staff officer for laboratory services, Animal Disease Eradication Division, USDA, Washington, D.C. He was formerly assistant chief staff officer for laboratory services.



Dr. O. J. Hummon

Dr. Hummon worked for USDA as a field veterinarian, as assistant veterinarian in charge in Baltimore, and as assistant in the brucellosis section. He accepted the position as assistant chief staff officer, laboratory services, in September, 1956.

He has also operated a veterinary practice near Seattle, produced biological products, and served the U.S. Department of Interior as veterinarian in charge of the Fur Animal Disease Research Station at Pullman, Wash.

Dr. Hummon is a member of the AVMA, the National Association of Federal Veterinarians, and the U.S. Livestock Sanitary Association.

Purdue Announces New Appointments

New appointments to the faculty of the School of Veterinary Science and Medicine, Purdue University, have been announced. They will be effective July 1. The school begins its third year of operation next September.

Dr. Robert A. Holmes has been appointed as instructor in veterinary anatomy. Dr. Holmes received his D.V.M. degree from Michigan State University in June. He received both his B.S. and M.S. degrees from the same school in 1960. He has been doing

research in veterinary anatomy for the past few years.

Dr. John F. Stump (OSU '58) is also joining the staff in July as instructor in veterinary anatomy. Dr. Stump has been in general practice at Bucyrus, Ohio.

Dr. David C. Van Sickle (ISU '57) has been appointed as instructor in veterinary anatomy. Since graduation Dr. Van Sickle has been in the U. S. Air Force for 2 years and is currently a general practitioner in Shannon, Ill.

Dr. James C. Blakemore (MSU '59) has been appointed assistant professor of small animal medicine and surgery, Department of Veterinary Clinics. He was on the staff of the Small Animal Clinic of the University of California for one year. Dr. Blakemore is currently a small animal practitioner at Bay City, Mich.

Dr. James Calahan (OSU '59) has accepted an appointment as assistant professor of veterinary clinics (ambulatory). Dr. Calahan received his B.S. degree from Cornell University in 1955.

Dr. Charles D. Heinze (KSU '53) has been appointed assistant professor of large animal medicine and surgery. Dr. Heinze also received his B.S. degree from Kansas State University in 1953. He was in general practice in Nebraska and in Iowa for 5 years prior to joining the staff of Oklahoma State University. He is currently assistant professor of large animal medicine there.

Dr. Robert E. Lewis (MSU '57) has been appointed assistant professor of veterinary radiology. Dr. Lewis received his B.S. degree from Michigan State University in 1955. Since 1957 he has been on the staff at Purdue University and is currently an instructor in veterinary anatomy.

Dr. Theodore Burnstein (COL '49) has been appointed associate professor of veterinary microbiology. Dr. Burnstein received his M.S. degree from Cornell University in 1951 and his Ph.D. degree from the same school in 1953. He has served as a research fellow at the Johns Hopkins University and is presently on the staff of the University of Miami Medical School.

Dr. James E. Creed has accepted an appointment as instructor in veterinary microbiology. He received his B.S. degree from the University of Missouri in 1954 and his D.V.M. degree in June, 1961.

Dr. Billy E. Hooper has also accepted an appointment as an instructor in veterinary

pathology. He received his D.V.M. degree from the University of Missouri in June, 1961.

Dr. J. Robert Saunders (ONT '54) has accepted an appointment as assistant professor of veterinary microbiology. Dr. Saunders earned his D.V.P.H. degree from the University of Toronto in 1957 and a Ph.D. degree from the University of Wisconsin in 1960.

Dr. Lloyd Tiffany has been appointed as associate professor of veterinary microbiology. Dr. Tiffany received the B.S. degree at Calvin College in 1951, and the M.S. degree at Michigan State University in 1952. He received the Ph.D. degree at the same university in 1955. Dr. Tiffany has been a member of the staff of the School of Public Health in the University of Michigan, was an instructor in the Department of Microbiology and Public Health at Michigan State University, and from 1958 to the present has been employed as an instructor in microbiology and immunology at Marquette University School of Medicine.

Mr. Bobby L. Valentine has been appointed as instructor in veterinary microbiology. Mr. Valentine received a B.A. degree from Louisiana State University in 1954 and an M.S. degree in 1956.

Dr. Kenneth M. Weinland (MSU '41) will join the faculty as assistant professor of veterinary science in the Agricultural Extension Service. Dr. Weinland has been in general practice at Ossian, Ind., for 20 years.

University of Pennsylvania Sponsors Animal Disease Conference

The Sixth Annual Animal Disease Conference for Regulatory Veterinarians was held May 26 under the sponsorship of the University of Pennsylvania School of Veterinary Medicine.

Theme of the 1961 conference was "The Regulatory Veterinarians' Responsibility Relative to Communicable Diseases of Animals."

National progress in hog cholera eradication, tuberculosis eradication, and problems of disease control at livestock auctions were some of the topics discussed. Dr. Edwin L. Brower (KSU '30), New Jersey's director of the Division of Animal Industry, spoke on encephalitis. Dr. James E. Prier (COR

'46), associate professor of virology at the School of Veterinary Medicine, University of Pennsylvania, presented the opening report on immunological processes.

Dr. Andre Lagace Returns to Faculty of Quebec

After a 2-year absence, Dr. Andre Lagace (MON '54) has returned to the School of Veterinary Medicine, St. Hyacinthe, Que., where he will serve as professor in the Department of Pathology.

After graduation, Dr. Lagace worked with the Agricultural Research Council of the Ministry of Agriculture, Province of Quebec. He then studied at Ohio State University, where he obtained his M.S. and Ph.D. degrees. In 1957 he was named assistant professor in pathologic anatomy at Quebec, where he also assisted in the clinic laboratory. He held this post until 1958 when he became a staff member of the Veterinary Research Laboratory of the Quebec government. Some time later he returned to the United States where he did research work at the Ohio Agricultural Experiment Station, Wooster, Ohio.

New Facilities Opened at Auburn

New facilities, costing a total of \$974,000, were opened this scholastic year by the School of Veterinary Medicine at Auburn University, Auburn, Ala.

McAdory Hall, a new clinic operated by the Department of Large Animal Medicine and Surgery, houses surgery rooms with modern equipment; pathology, dairy, and radiology laboratories; and offices for faculty members.



The new large animal clinic, part of the school of veterinary medicine at Auburn University, is shown here. The entire plant contains 6 buildings, now in use, which cost \$974,000.



The receiving facility at the new large animal clinic is also in use. Scales and direct chutes to stalls are featured. Operating rooms are in the background.

Separate barns for horses, cattle, dairy stock, sheep, swine, and hay are adjacent to the clinic. Treatment of local farm animals is conducted in addition to teaching diagnostic and surgical techniques.

Another new addition to the Auburn Veterinary School is the animal disease research area. This facility, costing about \$300,000, was opened last October and includes the Sugg research laboratory, isolation unit, hay barn, and cattle work building.

In the 7,938-square foot research laboratory, facilities are available for pathology, radiobiology, endocrinology, biochemistry, bacteriology, virology, and photomicrography in addition to conference rooms and offices. Sixteen Rockefeller-type stalls and a laboratory comprise the isolation unit.

A 90-acre farm has been purchased as a part of the large animal clinic and the animal disease research department. It will be used to pasture animals for long-range experimentation and study.

California Instructor Honored by Students

The first Annual Faculty Award at the University of California, Davis, was presented by the graduating veterinary medicine class to Dr. Blaine McGowan, Jr. (CAL '52), associate professor, School of Veterinary Medicine.

Ralph Cooper, class-of-1961 spokesman, said his class decided to establish the award at the school to express their appreciation.

Each year the graduating veterinary medi-



Dr. McGowan (left) displays the Annual Faculty Award plaque presented to him by the 1961 class of veterinary students. Center is Ralph Cooper, class spokesman, who presented the award. Dean Donald E. Jasper holds the school's permanent Faculty Award plaque.

cine class will present the award to the faculty member rating highest in dedication to teaching, consideration of students, and personal integrity.

An engraved plaque was presented to Dr. McGowan during a special ceremony Friday, May 26. A similarly engraved plaque, with space for future recipients' names, will be hung permanently in the school.

Dr. McGowan teaches classes in ecologic factors of animal disease and large animal medicine. He is chairman of the school's Department of Veterinary Services, which procures experimental animals for research purposes. His research has been directed principally toward sheep diseases, such as summer pneumonia, vibriosis, and epididymitis of rams.

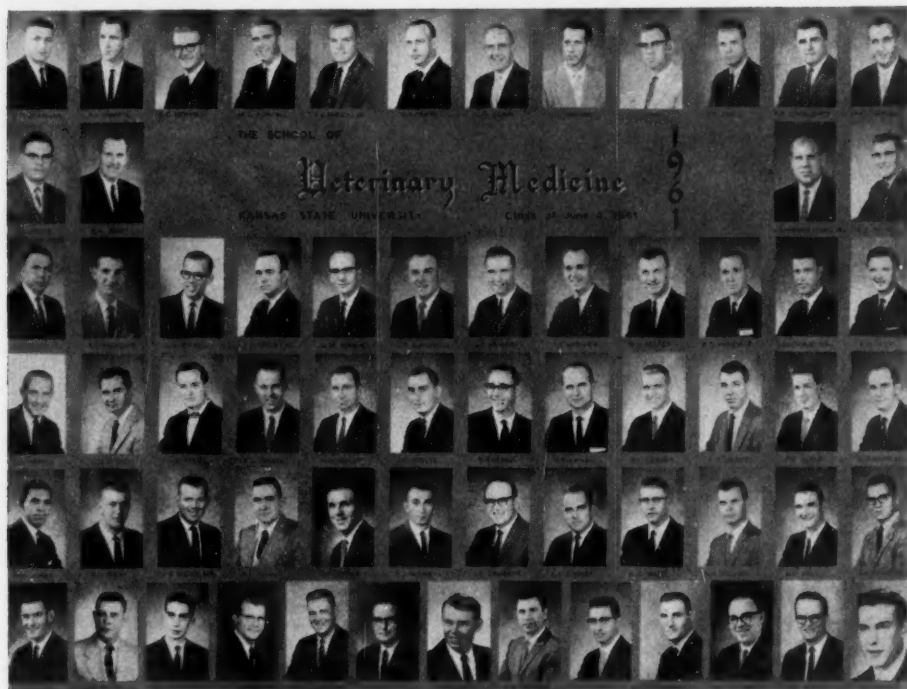
Purdue Receives Gift from Veterinary Medical Association

The Central Indiana V.M.A. has presented a gift of \$5,000 to the School of Veterinary Science and Medicine, Purdue University. The interest from the money is to be used for worthy causes of the School of Veterinary Science and Medicine, its students, and faculty.

The use of the interest accrued from this principal sum will be determined each year by a committee consisting of the executive dean of Purdue University, the dean of the School of Veterinary Science and Medicine, the Central Indiana V.M.A. president, and the association's Finance Committee chairman.

Commencements

Graduating Class, 1961, School of Veterinary Medicine, Kansas State University



Top row (left to right)—N. M. Boodman, R. J. Connell, E. C. Newman, W. L. Aspinall, J. J. Bailey, Jr., B. R. Craig, C. W. Clark, G. D. Suddaby, G. W. Daily, S. R. Jones, F. T. Szatalowicz, R. F. Torrence.

Second row—B. L. Deyoe, R. A. Jones, W. R. Weatherford, Jr., R. D. Wiltfong.

Third row—J. D. Olsen, N. L. Saunders, M. L. Dierks, R. G. Gillespie, D. M. Burbach, C. T. Campbell, J. R. Kennedy, J. Kashner, R. N. Parker, R. D. McNemar, J. D. Samuelson, R. H. West.

Fourth row—J. D. Harris, L. D. Jensen, M. E. Freel, V. L. Lindell, W. A. Grant, J. E. Brotha, G. P. Combs, H. N. Lange, B. I. Osburn, R. G. Skaggs, P. A. McRae, D. J. Burrough.

Fifth row—B. R. Jones, R. O. Bieri, I. R. Nicholson, J. R. Hasler, G. E. Meyer, A. J. Quinn, J. D. Lambert, L. E. Ensley, R. J. Gayek, R. R. Hilmer, A. D. Jaax, J. H. Rainman.

Sixth row—R. L. Rankin, G. G. Getz, R. M. Wesner, G. D. Hanneman, R. F. Playter, C. G. Greene, J. P. Flolo, W. E. Mathes, J. P. Seacat, C. V. Hulse, H. R. Bixby, R. E. Bowen, W. W. Rogers.

Kansas State University

At the 1961 commencement exercises of the School of Veterinary Medicine, Kansas State University, the following 65 candidates were presented the D.V.M. degree:

Wayne L. Aspinall
Joseph J. Bailey, Jr.

Russel O. Bieri
Howard R. Bixby

Neil M. Boodman
Richard E. Bowen
Daniel M. Burbach
Donald J. Burrough
Charles T. Campbell
Chad W. Clark
Gary P. Combs
Richard J. Connell
Ben R. Craig
George W. Daily
Billy L. Deyoe

Merton L. Dierks
James E. Drolte
LeRoy E. Ensley
John P. Flolo
Marvin E. Freel
Richard J. Gayek
Glenn G. Getz
Robert G. Gillespie
William A. Grant
Charles G. Greene
Gerald D. Hanneman

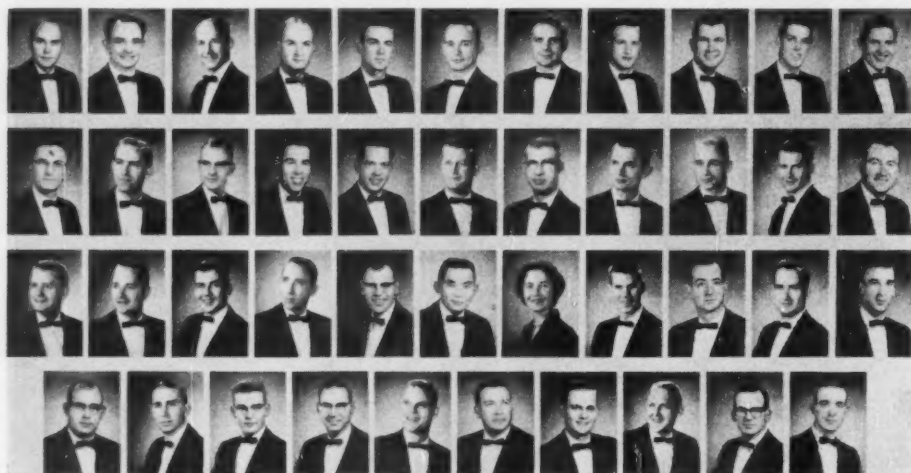
Jerry D. Harris
James R. Hasler
Richard R. Hilmer
Clifford V. Hulse
Alfred D. Jaax
Leland D. Jensen
Bobby R. Jones
Richard A. Jones
Sidney R. Jones
Joe Kashner
John R. Kennedy

John D. Lambert
Harold N. Lange
Vernon L. Lindell
Wayne E. Mathes
Robert D. McNemar
Paul A. McRae
George E. Meyer
Everet C. Newman
Ivan R. Nicholson
John D. Olsen

Benny I. Osburn
Robert N. Parker
Robert F. Playter
Art J. Quinn
Joseph H. Rainman
Roger L. Rankin
Wallace W. Rogers
John L. Samuelson
Noble L. Saunders

John P. Seacat
Robert G. Skaggs
George D. Suddaby
Florian T. Szatalowicz
Robert F. Torrence
Walter R. Weatherford, Jr.
Ronald M. Wesner
Robert H. West
Richard D. Wiltfong

Graduating Class, 1961, College of Veterinary Medicine, Washington State University



Top row (left to right)—D. P. Anderson, W. G. Baldwin, W. D. Barry, G. A. Bodily, S. J. Boyd, P. H. Bissonette, E. H. Bull, R. L. Darlington, K. G. Davis, M. B. Dennis, G. G. Duskin.

Second row—R. D. Ediger, L. H. Evans, R. G. Guthrie, A. R. Harder, R. L. Haskell, E. D. Hill, R. G. Johnston, E. O. Kearley, K. K. Kellogg, T. E. Kelly, C. R. Lange.

Third row—K. A. Larson, J. B. Lebo, R. M. Lewis, J. S. Locke, K. R. MacRae, T. T. Migaki, L. N. Miller, D. O. Miller, R. S. Miller, L. R. Miller, W. J. Moffat.

Fourth row—C. R. Moyes, J. C. Murphy, W. G. Nelson, J. E. Perry, R. R. Ryno, E. D. Shortlidge, R. J. Streeter, W. E. Vockert, D. W. Webert, R. B. Wilson.

Washington State University

At the 1961 commencement exercises of the College of Veterinary Medicine at Wash-

ington State University, the following 43 candidates were presented the D.V.M. degree.

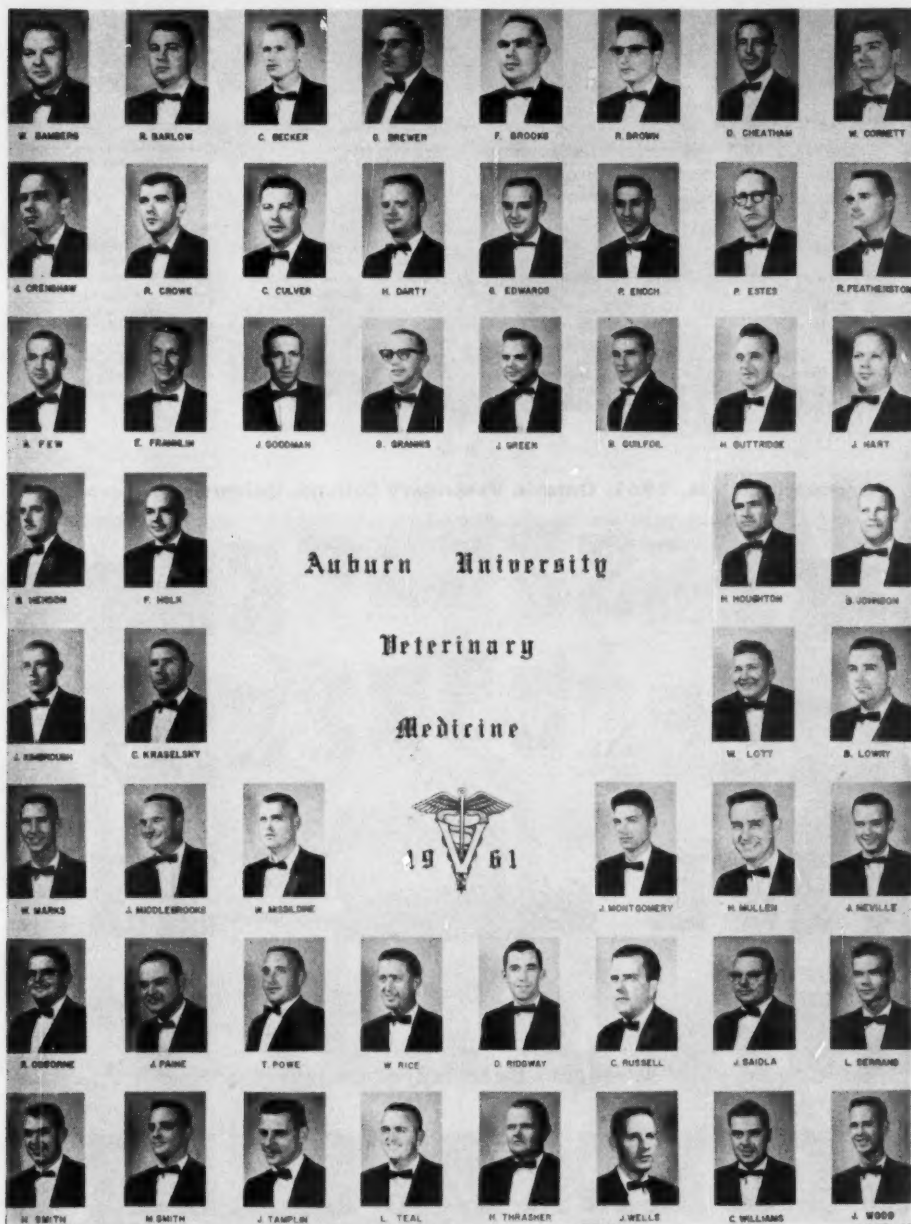
David P. Anderson
William G. Baldwin
Paul H. Bissonette
Gene A. Bodily
S. James Boyd
Emory H. Bull
Robert L. Darlington
Kenneth G. Davis
Melvin B. Dennis
Gordon G. Duskin
Raymond D. Ediger

Loren H. Evans
Richard G. Guthrie
A. Roger Harder
Robert L. Haskell
Everett D. Hill
Raymond G. Johnston
Edward O. Kearley
Kenneth K. Kellogg
Thomas E. Kelly
Charles R. Lange
Kenneth A. Larson

James B. Lebo
Robert M. Lewis
James S. Locke
Kenneth R. MacRae
Thomas T. Migaki
Linda N. Miller
Richard O. Miller
Robert S. Miller
L. Ross Miller
William J. Moffat

Charles R. Moyes
James C. Murphy
Willard G. Nelson
James E. Perry
Richard R. Ryno
Eugene D. Shortlidge
Ronald J. Streeter
Walter E. Vockert
Donald W. Webert
Robert B. Wilson

Graduating Class, 1961, School of Veterinary Medicine, Auburn University



Top row (left to right)—W. Bamberg, R. Barlow, C. Becker, G. Brewer, F. Brooks, R. Brown, D. Cheatham, W. Cornett.
 Second row—J. Crenshaw, R. Crowe, C. Culver, H. Darty, G. Edwards, P. Enoch, P. Estes, R. Featherston.
 Third row—A. Few, E. Franklin, J. Goodman, S. Grannis, J. Green, B. Guilfoil, H. Guttridge, J. Hart.
 Fourth row—B. Henson, F. Holk, H. Houghton, B. Johnson.
 Fifth row—J. Kimbrough, C. Kraselsky, W. Lott, B. Lowry.
 Sixth row—W. Marks, J. Middlebrooks, W. Missildine, J. Montgomery, H. Mullen, J. Neville.
 Seventh row—R. Osborne, J. Paine, T. Powe, W. Rice, D. Ridgway, C. Russell, J. Saidla, L. Serrano.
 Eighth row—H. Smith, M. Smith, J. Tamplin, L. Teal, H. Thrasher, J. Wells, C. Williams, J. Wood.

Auburn University

On June 2, 1961, 54 candidates received the D.V.M. degree at the School of Veterinary Medicine, Auburn University, commencement exercises. They were:

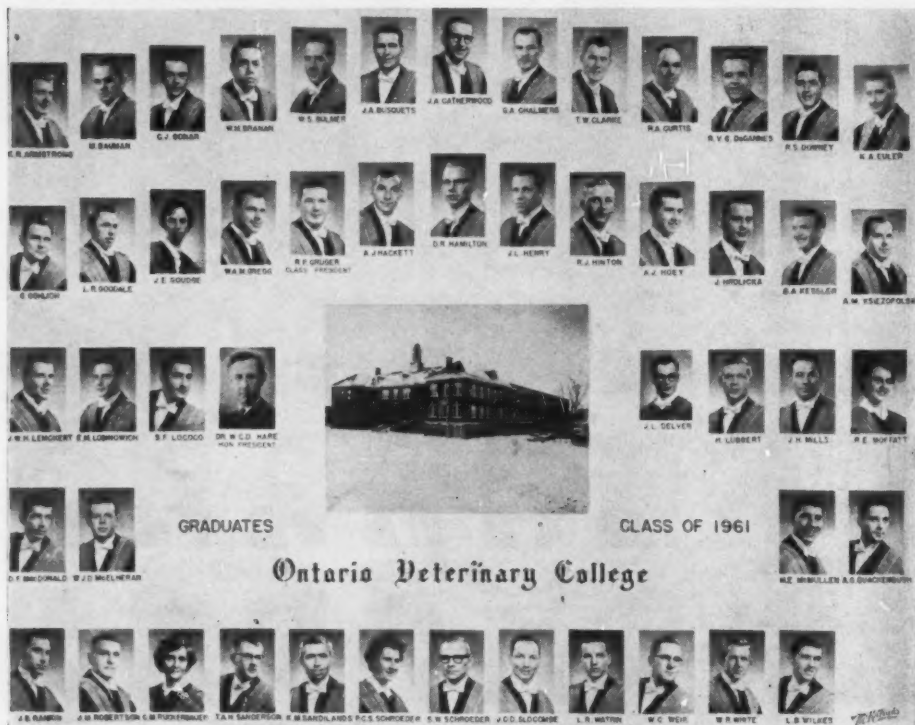
Waymon S. Bamberg
Robert L. Barlow
Charles R. Becker
George L. Brewer
Frank T. Brooks
Randolph S. Brown
Donald G. Cheatham
William F. Cornett
Joseph D. Crenshaw

Robert R. Crowe
Carl L. Culver
Harry C. Darty
George M. Edwards
Paul W. Enoch
Paul C. Estes
Richard D. Featherston
Albert B. Few
Edward O. Franklin

Jack D. Goodman
Sidney S. Grannis
James N. Green
Bobby A. Guilfoil
Harold B. Guttridge
John R. Hart
Billy H. Henson
Fred W. Holk
Herbert J. Houghton
Bennie L. Johnson
Jack S. Kimbrough
Charles N. Kraselsky
William W. Lott
Billy F. Lowry
William J. Marks
James E. Middlebrooks
William E. Missildine
James K. Montgomery
Harold Mullen

James A. Neville
Ronald E. Osborne
James G. Paine
Thomas A. Pice
Walter W. Rice
Delbert A. Ridgway
Carl R. Russell
John E. Saidla
Louis J. Serrano
Hassell B. Smith
Myron W. Smith
John H. Tamplin
Lomax Teal
Holland P. Thrasher
James E. Wells
Claude B. Williams
John P. Wood

Graduating Class, 1961, Ontario Veterinary College, University of Toronto



Top row (left to right)—K. R. Armstrong, M. Bauman, C. J. Bonar, W. M. Branaw, W. S. Bulmer, J. A. Busquets, J. A. Catherwood, G. A. Chalmers, T. W. Clarke, R. A. Curtis, R. V. G. de Gannes, R. S. Downey, K. A. Euler.

Second row—G. Gohlich, L. R. Goodale, J. E. Goudge, W. A. M. Gregg, R. P. Gruger, A. J. Hackett, D. R. Hamilton, J. L. Henry, R. J. Hinton, A. J. Hoey, J. Hrdlicka, G. A. Kessler, A. M. Ksiezopolski.

Third row—J. W. H. Lemckert, E. M. Lobinowich, S. F. Lococo, Dr. W. C. D. Hare (honorary class president), J. L. Delver, H. Lubbert, J. H. Mills, R. E. Moffatt.

Fourth row—D. F. MacDonald, W. J. D. McElheran, M. E. McMullen, A. G. Quackenbush.

Fifth row—J. B. Rankin, J. M. Robertson, G. M. Ruckerbauer, T. A. H. Sanderson, K. M. Sandilands, P. C. S. Schroeder, S. W. Schroeder, J. O. D. Slacombe, L. R. Watrin, W. C. Weir, W. R. White, L. B. Wilkes.

University of Toronto, Ontario Veterinary School

At the 1961 commencement exercises of the Ontario Veterinary School, University of Toronto, the following 48 candidates received their D.V.M. degrees:

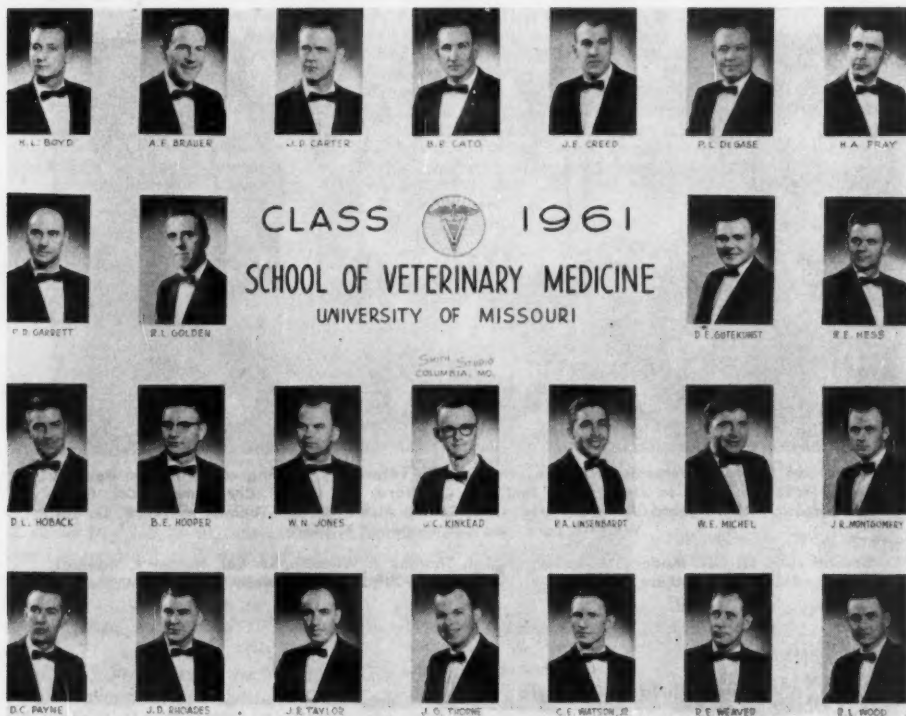
Kenneth R. Armstrong
Murrel Bauman
Charles J. Bonar
Wallace M. Branan
William S. Bulmer
Jorge B. Busquets

John A. Catherwood
Gordon A. Chalmers
Thomas W. Clarke
Robert A. Curtis
Rolph V. G. de Gannes
John L. Delver

Ronald S. Downey
Karl A. Euler
Gunter Gohlich
Donald R. Goodale
Joan E. Goudge
William A. M. Greeg
Ronald P. Gruger
Arthur J. Hackett
Donald R. Hamilton
John L. Henry
Robert J. Hinton
Alan J. Hoey
Joseph Hrdlicka
Gerald A. Kessler
Andrzej M. Ksiezopolski
John W. H. Lemckert
Edward M. Lobinowich
Salvatore F. Lococo

Hugo Lubbert
James H. L. Mills
Ruth E. Moffatt
Donald F. McDonald
William J. D. McElheran
Murray E. McMullen
Arnley G. Quackenbush
James B. Rankin
James M. Robertson
Thomas A. H. Sanderson
Keith M. Sandilands
Patricia C. Schroeder
Sigurd W. Schroeder
Joseph O. D. Slocombe
Lawrence R. Watrin
Walter C. Weir
William R. White
Leonard B. Wilkes

Graduating Class, 1961, School of Veterinary Medicine, University of Missouri



Top row (left to right)—H. L. Boyd, A. E. Brauer, J. D. Carter, B. R. Cato, J. E. Creed, P. L. DeGase, H. A. Fray.

Second row—P. D. Garrett, R. L. Golden, D. E. Gutekunst, R. E. Hess.

Third row—D. L. Hoback, B. E. Hooper, W. N. Jones, J. C. Kinkead, R. A. Linsenbardt, W. E. Michel, J. R. Montgomery.

Fourth row—D. C. Payne, J. D. Rhoades, J. R. Taylor, J. G. Thorne, C. E. Watson, Jr., R. E. Weaver, R. L. Wood.

University of Missouri

This year 25 candidates received the D.V.M. degree at the School of Veterinary Medicine, University of Missouri, commencement exercises. They were:

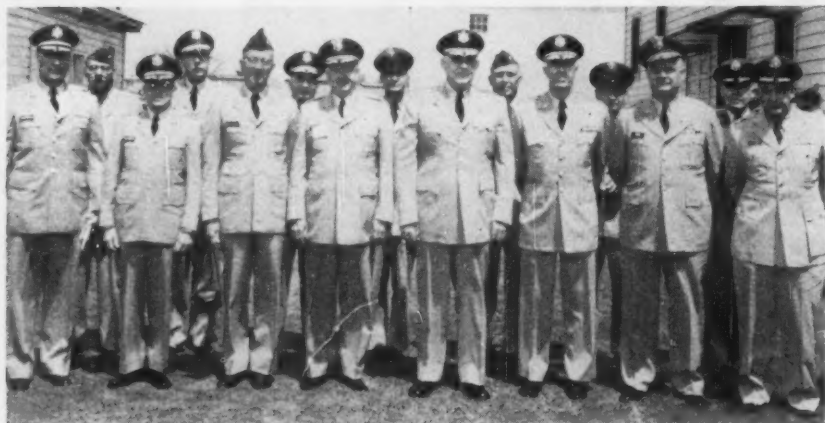
Leon H. Boyd
Arthur E. Bauer

James D. Carter
Bill R. Cato

James E. Creed
Paul L. DeGase
H. Allen Fray
Phillip D. Garrett
Robert L. Golden
Donald E. Gutekunst
Robert E. Hess
Douglass L. Hoback
Bill E. Hooper
Walter N. Jones
J. Carter Kinkead

Robert A. Linsenbarte
William E. Michel
John F. Montgomery
Darrell C. Payne
John D. Rboades
Jewell R. Taylor
James E. Thorne
Cyril E. Watson, Jr.
Ray E. Weaver
Richard L. Wood

Veterinary Military News



Army and Air Force veterinarians who attended the veterinary training conference in Georgia were (front row, left to right): Col. James P. Crawford, Col. Nels F. Christianson, Col. Curtis W. Betzold, Col. Angvold Vickoren, Brig. Gen. Russell McNellis, Col. Thomas A. Ward, Lt. Col. Willys E. Lord, and Col. Benjamin F. Leach.

Second row: Lt. Col. Madero N. Bader, Lt. Col. Thomas J. Wheelin, Lt. Col. Hunter E. Kendall, Lt. Col. Robert B. Leathers, Major C. V. Lang, Major William V. Howells, and Col. William E. Bills.

Training Conference Held in Georgia

A 2-day veterinary training conference was held April 11-12, 1961, at Fort McPherson, Ga. Approximately 65 veterinarians of the Army Air Force attended. They were mainly from the Third Army Area—7 southeastern states—but some came from Texas, Nebraska, Illinois, and Washington, D.C.

Brig. Gen. Russell McNellis, chief of the

U.S. Army Veterinary Corps, was the featured speaker at the conference. Topics discussed during the 2-day period included zoonoses, research and development projects, public health problems and trends, problems relating to procurement inspection of foods, training and inspection policies, and personnel.



Participants in the 10-week Third Veterinary Officer Class at the U.S. Army Meat and Dairy Hygiene School, Chicago, are shown above. The group, which was graduated May 10, 1961, included (top row, left to right): First Lt. Berry W. Moore; First Lt. Carl W. Wilson; First Lt. Nolan C. Sharp; First Lt. Albert D. Bellamy; First Lt. Robert W. Yates; First Lt. Paul B. Smith; First Lt. Anthony F. Gouveia; First Lt. Joseph F. Poppler.
 Second row: First Lt. David H. Kelley; First Lt. Gary F. Farmer; Capt. Dimitrios Mourelatos; First Lt. James A. Ferguson; First Lt. Richard S. Spira; First Lt. Alfred W. Bailey; First Lt. Richard A. Rezzonico; First Lt. Robert W. Betts.
 Third row: SP 5 Harold B. Rizen, instructor; First Lt. Scott L. Reynolds; First Lt. Lloyd B. Sells; First Lt. Alton F. Smith; First Lt. David R. Luck; First Lt. Richard E. Coon; First Lt. William W. Frevort; First Lt. James F. Sautter; SP 4 Larry H. Hundley, instructor.
 Bottom row: MSgt. George L. Nischan, instructor, MSgt. Earl E. Christianson, instructor; Major Buford F. Bridges, instructor; Major George E. Ritter, director of training; Col. Nels F. Christensen, commandant; Capt. F. D. Ramirez, adjutant; Capt. James C. Kepp, instructor, MSgt. Earl B. Bush, instructor.

Deaths

Star indicates member of AVMA

★August A. Lenert (KCV '17), 69, a faculty member of the A. & M. College of Texas, School of Veterinary Medicine, for 39 years, died May 8, 1961.

Dr. Lenert joined the faculty at Texas A & M in 1919 as an associate professor in the Department of Veterinary Medicine and Surgery. In 1937, he was made head of that department, a position he held until going on modified service in 1957. He retired in 1958.

In 1957 Dr. Lenert received the Faculty Achievement Award at the school. He was a member of the AVMA, Texas V.M.A., and the U.S. Livestock Sanitary Association.

Martin E. Anderson (IND '21), 72, Modesto, Calif., died May 15, 1961.

Dr. Anderson was an employee of the state department of agriculture. He lived in Modesto for 35 years.

★Reuel Fenstermacher (OSU '17), 68, professor and head of the Division of Veterinary Diagnostic Laboratories, College of Veterinary Medicine, University of Minnesota, died May 8, 1961.



Dr. Reuel Fenstermacher

Dr. Fenstermacher was planning to retire June 30, 1961 after 33 years as a faculty member at the school. He was employed by the Bureau of Animal Industry from 1917 to 1918, was in the Army from 1918 to 1919, and was employed by the Minnesota State Livestock Sanitary Board from May, 1919, to Dec. 31, 1927. On Jan. 1, 1928, he joined the faculty at the University of Minnesota.

Dr. Fenstermacher was a member of the AVMA, the Minnesota V.M.A., having been its president in 1948, the United States Livestock Sanitary Association, the Minnesota Academy of Science, the Research Workers of North America, and the Wild Life Society.

Percy J. Axtell (COR '05), 81, Daytona Beach, Fla., died May 6, 1961.

Dr. Axtell had practiced in Binghamton, N.Y., and was a meat inspector there.

W. M. Bloss, 87, of Midland, Texas, died April 21, 1961.

Dr. Bloss, besides being a veterinarian, had at one time been one of the nation's leading jockeys.

James T. Burton (KCV '15), 67, Huron, South Dak., died May 3, 1961.

Dr. Burton practiced in Belleville, Ill., and then in Hampton, Iowa. He also worked with the federal government as a meat inspector. He retired 3 years ago.

William H. Burton, 84, of Evansville, Ind., died of a heart attack May 3, 1961.

Dr. Burton practiced in Marion and Clay, Ky. He retired in 1953 and moved to Evansville at that time.

Lester W. Burwell (OSU '16), 78, died May 14, 1961.

Dr. Burwell had practiced in Greenfield, Ohio, for 40 years.

Hamilton J. Cheney (COL '40), 47, Great Bend, Kan., died April 20, 1961.

Dr. Cheney practiced in Great Bend until 1945 when he entered the Army. He was discharged in 1949.

Fern Cook (IND '09), 74, Camden, Ind., died April 25, 1961.

Dr. Cook had been in active practice for 52 years.

David M. Dill (KCV '11), 81, Winchester, Kan., died May 2, 1961.

Dr. Dill was a general practitioner. His death was caused by a stroke.

Joseph S. Dorton (KCV '18), Shelby, N. Car., died May 25, 1961.

Dr. Dorton was a North Carolina State Fair manager. He had been forced to stop practicing some years ago because of an allergy.

C. McHenry Greer (KCV '17), 67, Winnsboro, La., died April 21, 1961.

Dr. Greer was a general practitioner. He was president of the Louisiana V.M.A. in 1950.

Roy S. Hamilton (CVC '11), 79, Laingsburg, Mich., died April 22, 1961.

Dr. Hamilton had been a general practitioner in Laingsburg for the past 50 years.

★Francis A. Humphreys (OCV '19), 64, Abbotsford, British Columbia, died Feb. 11, 1961.

Dr. Humphreys was a general practitioner.

George W. Kinsey (CVC '91), 93, Wheeling, W. Va., died May 9, 1961.

Dr. Kinsey had practiced in Wheeling for 40 years. He had recently become a life member of the West Virginia V.M.A.

Eugene L. Krieger (GR '02), 85, St. Joseph, Mich., died April 17, 1961.

Dr. Krieger practiced in Benton Harbor. He moved to St. Joseph when he retired several years ago.

J. A. Ness (MCG '96), 87, Auburn, Me., died May 3, 1961.

Dr. Ness was active in many farm organi-

zations in Maine. In 1933, he was named as Maine's outstanding farmer by the University of Maine.

***Alexander Slawson (COR '10)**, 76, a general practitioner, died April 5, 1961.

Dr. Slawson had lived in Franklin Square, N.Y., for 10 years. He had been in practice for more than 50 years, having practiced in New York City. He was licensed to practice in New York, Illinois, Delaware, Vermont, and Massachusetts. Dr. Slawson became a member of the AVMA Honor Roll in 1961.

***T. L. Steenerson (OSU '24)**, 62, of Wilkinson, Ind., died of a heart attack on April 13, 1961.

Dr. Steenerson had practiced in Wilkinson since 1925. He was a member of the AVMA and the Indiana V.M.A.

Samuel S. Westgate (ONT '06), 84, Bismarck, N. Dak., died April 30, 1961.

Dr. Westgate was a general practitioner. He had practiced at Russell, Mott, and Gratton, N. Dak. He was a past-president of the North Dakota V.M.A.

Women's Auxiliary

Guam — An Island Paradise

For the past 3½ years, our home has been on Guam where Dr. Rea is the chief of Animal Industry and staff veterinarian for the government of Guam. Guam is a small Pacific island (30 miles long and 4 to 8 miles wide) located 5,553 miles southwest of San Francisco. Its people, mainly of Charmorro origin with a Spanish and Filipino influence, are happy, cooperative, and have a tremendous loyalty to the United States.

We thoroughly enjoy our island paradise. The days are sunny, although there are showers daily even during the dry season. Temperatures range from 70 to 90 degrees with an average of 81 degrees. Nights are beautiful and delightfully cool. The island is mountainous in the south but flattens out to a high plateau in the north. Foliage is tropical. There is an abundance of hibiscus, plumaria, bougainvillea, and gardenias. Coconut trees are everywhere.

Housing is quite different from that in the states—our homes are built for comfortable living in the tropics. For instance, we reside in a huge quonset hut (10 rooms) with no glass windows. Instead there is a

screened area extending from the ceiling to within 2½ feet of the floor. A canvas roll fastened at the top of the screen may be dropped in case of a typhoon or strong winds accompanied by heavy rain. Our furniture is of rattan, durable for this climate, attractive, and in keeping with the atmosphere of the Far East. Most stateside-type homes are constructed of cement blocks and have screened windows with glass louvers. Many Guamanians live in homes built on high stilts, having just openings for windows. They do some of their work, such as washing, under their houses where it is cool.

As is always true in a warm climate, there are many bugs. We try to control them with various sprays and the use of "bug ban" paper in cupboards and drawers. We have learned to accept gekos, small chameleon-type lizards which prey upon insects. They are everywhere and enjoy glue on envelopes and stamps as well as insects. Every household has one or more cats to help curb the shrew (similar to a mouse) population.

Each home is equipped with several hot lockers—closets or cupboards in which there is either an electric heating element or an electric light bulb burning day and night. The purpose of hot lockers is to keep clothing and leather from mildewing, food from becoming too damp, and small electrical appliances from rusting.

We eat the same type of food on Guam as we do stateside. Fresh food that is not produced locally is imported from neighboring islands or the states. Bananas (15 varieties), tangerines, oranges, lemons, mangoes, papayas, eba, cucumbers, star apples, peppers, cabbage, and onions are produced locally although not in large enough quantities to supply island needs. Due to climatic conditions, dairying has not proved economical, so nearly everyone uses reconstituted milk which is processed here. Most of our butter comes from Australia and has the physical properties of margarine but the flavor of stateside butter. Meat is locally raised or comes from the United States, Australia, or New Zealand. Oatmeal comes solidly packed in small metal cans which contain the equivalent of the large, round paper cartons in the states. All stores have an abundance of oriental foods. Generally speaking, living in Guam is less expensive than it is in the states.

Storage of various foods differs greatly from the methods used in South Dakota. For instance jello spoils unless it is deep frozen. Cereals, macaroni, rice, and tapioca get soggy and wormy unless they are removed from their original containers and stored in airtight containers in the hot locker.

People have wondered what we do to keep busy on such a small island. The truth is that there just isn't ever enough time for everything. Our main recreational activities are swimming, shelling, skin diving, fishing, deep-sea diving, and surfboard riding. There are athletic contests such as baseball, football, and basketball. There are opportunities to attend classes in cake decorating, oriental art, hula and other island dancing, Japanese flower arrangements, music, dress making, and pattern drafting, as well as academic courses offered at the College of Guam. We have several theaters, indoor and outdoor, and occasionally we attend concerts given by off-island groups. Organizations such as Rotary, Toastmasters, Elks, and the A.A.U.W., have branches on Guam. Guam is a free port, so there is an excep-

tionally large number of gift shops featuring gifts from all over the world.

Social life in the 21 villages centers around the church (Roman Catholic) and fiestas. Fiestas may stem from the observance of feast days of village patron saints, birthdays, weddings, christenings, or funerals. Guests are not invited but drop in for a visit, food, and drink. Fiesta tables are laden with such foods as chicken roasted over a tanentang fire, meats including the traditional roast suckling pig with a potato dressing, and fish prepared in several ways. Fish heads, considered the best part of the fish, are saved for the head of the house. There are taro root and its greens, balute (cooked fertilized egg), heart of palm salad, fried bananas, fried rice, and a sponge-type cake often served with a custard sauce. In the past, fiestas lasted until all the food was gone (due to lack of refrigeration and distance travelled by guests) which often was as long as 3 or 4 days.

Since the U.S. Air Force and Navy have large installations here, there is a lot of social activity centered around them. Statesiders and Guamanians not affiliated with them get the benefit of attending many of their functions.

Our children attend schools staffed by statesiders and Guamanians. Many of their classmates have travelled all over the world.

Perhaps our most exciting and most unusual experience on Guam came within the first week of our arrival in November, 1957. The eye of Typhoon Lola passed 25 miles south of Guam. Never having been through a typhoon and having witnessed the damage caused by tornadoes in South Dakota, we didn't quite know what to expect. My husband "battened down" our quonset so well that despite the driving wind and rain at 125 miles per hour, we had no more than 3 teacups of water in our home. We spent the night in a typhoon-proof building. Our greatest hardship was no worse than having to go without electricity for 5 days. Damage to the island, however, was extensive. Lola went down in history as one of the 5 worst typhoons to hit Guam.

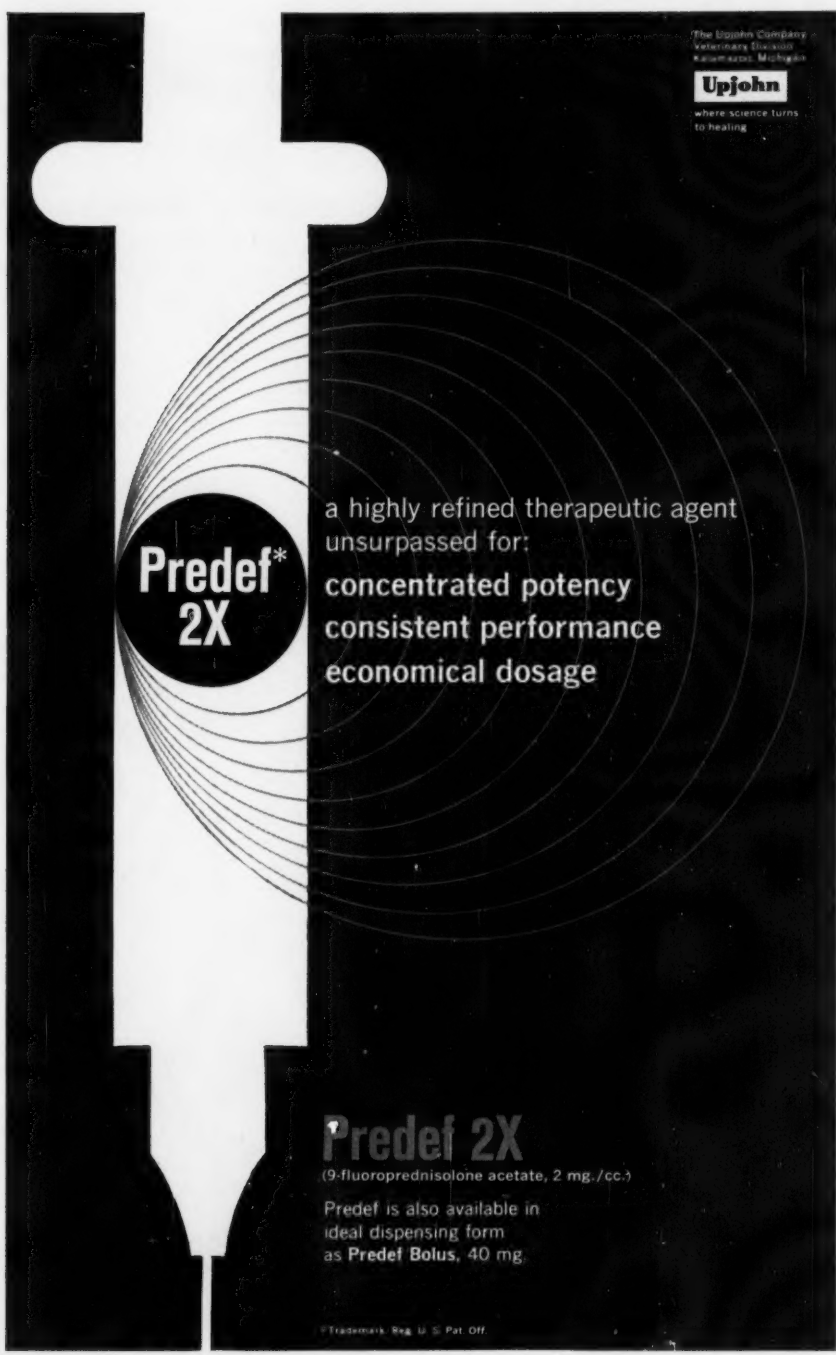
We have never regretted the move which brought us to Guam. But we do look forward to returning to our home in South Dakota and stateside life. When we do come home, we will feel as many others before us, that "Guam is good."

S/MRS. GLEN B. REA

The Upjohn Company
Veterinary Division
Kalamazoo, Michigan

Upjohn

where science turns
to healing



**Predel^{*}
2X**

a highly refined therapeutic agent
unsurpassed for:
concentrated potency
consistent performance
economical dosage

Predel 2X

(9-fluoroprednisolone acetate, 2 mg./cc.)

Predel is also available in
ideal dispensing form
as **Predel Bolus**, 40 mg.

^{*}Trademark, Reg. U. S. Pat. Off.

Announcing a Safe and Practical Method for the Effective Treatment of

New Kasco MOM 'N PUP® Dog Food—Medicated* provides complete nourishment while destroying the complex life cycle of large roundworms (*toxocara canis* and *toxascaris leonina*) for dogs through 18 months of age.

*contains 0.0066% of Diethylcarbamazine

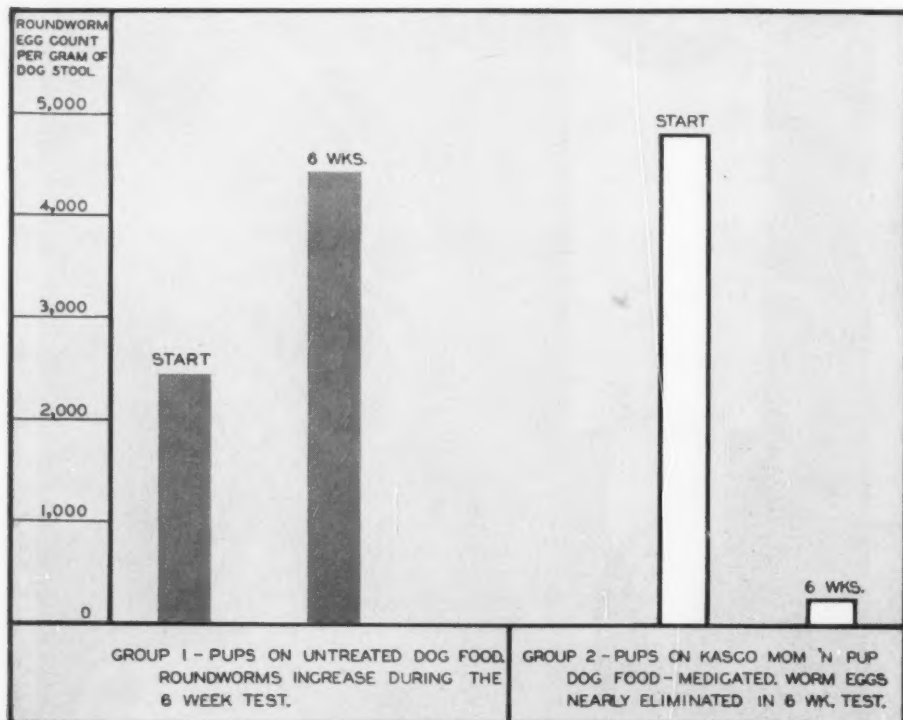
Research at last has found a new, effective and more convenient way to destroy and control roundworm infestation. Approved for dogs up to 18 months of age, and for use only on the advice of a veterinarian, Kasco MOM 'N PUP Dog Food—Medicated is a new method of roundworm treatment through feeding. Dogs and puppies literally eat their way to freedom from ascarids. Extensive testing

has established safety, stability and effectiveness—even for puppies just starting to eat, and for bitches before and after breeding.

On Veterinarian's Advice Only

Kasco MOM 'N PUP Dog Food—Medicated is available for feeding by dog owners only on the advice of a veterinarian. Its sale is restricted to dispensing veterinarians and

PUPPY DEWORMING WITH KASCO MOM 'N PUP DOG FOOD—MEDICATED



Roundworms Through Feeding

(ASCARIDS)

controlled outlets which will make delivery only on a veterinary recommendation. The product offers the veterinarian an attractive profit proposition.

Stable and Effective

The active worming ingredient in MOM 'N PUP is a stable and therapeutically active drug which has proved itself effective at levels low enough to be recommended. MOM 'N PUP eliminates large roundworms as soon as they reach the adult stage in the intestines. Egg contamination is checked because few, if any, eggs are produced. MOM 'N PUP effects a natural movement and has no cathartic characteristics.

Ordinary anti-roundworm drugs entail inconvenient fasting, purging and pill-forcing procedures which are not required when a dog is fed MOM 'N PUP. Repeated administration of ordinary remedies is required to obtain effective control.

Non-toxic

Toxic signs associated with some medication, such as vomiting and diarrhea are not observed with MOM 'N PUP. Fed at recommended, normal meal levels dogs get a correctly established dosage, and they may be fed continuously or intermittently—depending on the extent of the roundworm problem.

Proof of Effectiveness

The chart on the opposite page shows the effectiveness of MOM 'N PUP in an actual test, utilizing a control group. Two groups of seven-week-old puppies were infested with roundworms as shown by worm egg counts in the stools. One group was fed nothing but regular meal, the other was fed nothing but MOM 'N PUP. Worm eggs in each pup's stool were counted at regular intervals. The results, as shown on the chart, indicate that MOM 'N PUP promptly and effectively

checked roundworms and held them under control during the test period.

The Importance of Complete Nourishment

The nutritional value of MOM 'N PUP is equal to famous Kasco Dog Meal. Thus is provided the complete nourishment which is needed to help repair the worm-caused damage to a dog's health. Tests show that MOM 'N PUP and Kasco Dog Meal may be interchanged at will without digestive upsets.

MOM 'N PUP contains all the protein, fat, carbohydrates, vitamins and minerals which dogs are known to need for growth, maintenance and reproduction. Tests on reproduction have been completely favorable.

The palatability of MOM 'N PUP is excellent. Mixed with water in the usual manner, dogs eat readily and take the medication without hesitation. When mixed, especially with warm water, an appetizing aroma is instantly released, and dogs eat with normal enjoyment.

Literature and More Information

Write for literature and additional information to KASCO PROFESSIONAL SERVICE, Best Foods Division, Corn Products Company, 10 East 56th Street, New York 22, New York.



Best Foods Division, Corn Products Company, New York, N. Y.

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SKIN CONDITIONS FLARE UP...

Meti-Derm[®] WITH NEOMYCIN AEROSOL

for summer skin disorders—or year-around dermatoses

Spray-on "Meti" steroid therapy gives instant, cooling relief of itching, reduces swelling, stops scratching and prevents spread of lesions. The effective antibacterial action of neomycin gives added protection against secondary infection. Lesions respond rapidly—results may be seen in 24 to 48 hours after the initial application.

An excellent dispensing item

supplied: METI-DERM Aerosol with Neomycin, 50 Gm. spray container, boxes of 12 and 36.

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CATS, the test of any anesthetic

Individualists of the animal world, cats are singularly difficult subjects for anesthesia. No two react exactly alike. They are indeed the test of any anesthetic.

Abbott anesthetics have a long history of successfully taming the most reluctant "tigers," as well as other less difficult subjects. By choosing one of our *three* anesthetic agents, you can introduce a remarkable flexibility into your anesthetic approach.

PENTOTHAL®—for ultra short term anesthesia. Proven by more than a quarter of a century of use in thousands of cases.

COMBUTHAL®—for short term anesthesia. A specially developed agent with a wide range of applications.

NEMBUTAL®—for intermediate to long term anesthesia. Another agent proved by more than 25 years of successful use.

With one, or all, of these dependable agents on your shelves, you are prepared for any situation in anesthesia. How's your supply doctor?

You may order anytime from your Abbott man, your nearest Abbott branch, or direct from our Veterinary Department in North Chicago, Illinois.

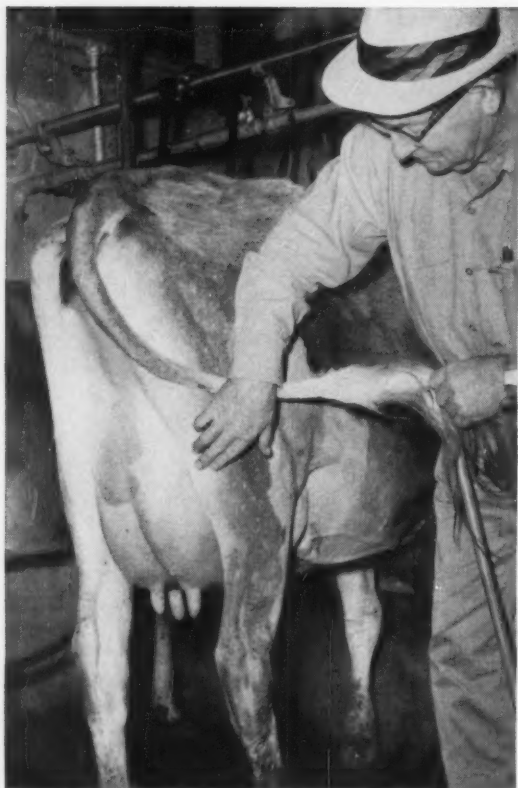


PENTOTHAL—THIOPENTAL, ABBOTT

COMBUTHAL—NEMBUTAL SODIUM—PENTOTHAL SODIUM

NEMBUTAL—PENTOBARBITAL, ABBOTT

DOE247



Ernest Greenough shows udder of one of his registered Jerseys vaccinated with CYANAMID STAPHYLOCOCCUS AUREUS TOXOID.

STAPHYLOCOCCUS AUREUS TOXOID is available to and administered by veterinarians only.



STAPHYLOCOCCAL MASTITIS

The problem of staphylococcal mastitis is increasing . . . many veterinarians state that from 40 to 60 per cent of the cases they are called upon to treat can be attributed to the persistent staphylococcal organism.

Because of the growing seriousness of the problem, Cyanamid made available Cyanamid Staphylococcus Aureus Toxoid, Slanetz Strain No. 7, after a long period of development and testing by Dr. L. W. Slanetz and his associates at the University of New Hampshire.

This product, available only to veterinarians, has proved effective in preventing the spread of staphylococcal mastitis to non-infected cows and preventing acute cases in cows already infected.

Procedure calls for 5 cc. intramuscularly, repeated in one month and annually thereafter. Vials are 50 cc. and 250 cc.

Considerable evidence is accumulating indicating the high level of efficacy of Cyanamid



STAPHYLOCOCCUS AUREUS TOXOID, SLANETZ STRAIN No. 7 is available in vials of 50 cc. and 250 cc.

Staphylococcus Aureus Toxoid in professional use by veterinarians, in all parts of the country and in connection with typical herds.

Ernest E. Greenough, Merced, California, has devoted fifty years to the development of his outstanding purebred Jersey herd, and, among many honors, received the American Jersey Cattle Club's Distinguished Service Award for 1960. He says:

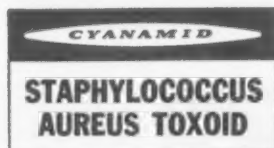
"I've been in the dairy business for the past 50 years. For most of that time mastitis has been a real problem, as it is for every dairyman. Our veterinarian started the use of Cyanamid Staphylococcus Aureus Toxoid in June, 1960. Right away, we noticed a dramatic reduction in the incidence of staph mastitis in our registered Jersey herd. I would recommend its use to dairymen everywhere who have a staph mastitis problem."

Mr. Greenough's veterinarian reports, "During the 11 years that I've been treating dairy animals in this area, I've used sever-

al autogenous bacterins, stock bacterins and toxoids with only fair results; but Cyanamid Staphylococcus Aureus Toxoid, Slanetz Strain, gives at least 25 per cent better results with fewer injections necessary. I've been using this vaccine since last June. The vaccine is in use in about 20 dairies in this area now. It is the most effective vaccine I've used yet for staphylococcal mastitis."

Cyanamid has developed a complete, highly practical and effective mastitis control program around Staphylococcus Aureus Toxoid. This program attacks the mastitis problem in all its phases—and requires the dairyman to utilize the continuing supervision, guidance and professional services of his veterinarian.

If you would like the procedure booklet on the Cyanamid Mastitis Control Program, please write Veterinary Professional Service Department, American Cyanamid Company, 30 Rockefeller Plaza, New York 20, N. Y.



WHEN THE SKIN IS

BROKEN

INFLAMED

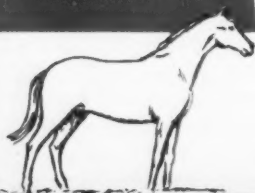
INFECTED

KYMAR[®] OINTMENT



CONTROLS
INFLAMMATION

CLEARs INFECTION



and also
CLEANS THE LESION

COMBINES

Neomycin
Hydrocortisone
diethylaminoacetate HCl
Proteolytic Enzymes



INDICATIONS

Primary Pyogenic Dermatitis
Otitis Externa

Non-specific Local Dermatitis
Fistulous Tracts
Infected Wound Sites

Reduces erythema and itching
Effective against both gram-negative and gram-positive bacteria
Removes necrotic tissue

© 1960, A. P. Co.

Available in Tubes 1/6 oz. (5 Gm.) and 1/2 oz. (15 Gm.)



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which do you prefer...

- *Laboratory Findings or*
- *20 years of Field Experience?*

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Distemperoid

CANINE DISTEMPER VACCINE (Ferret Origin)

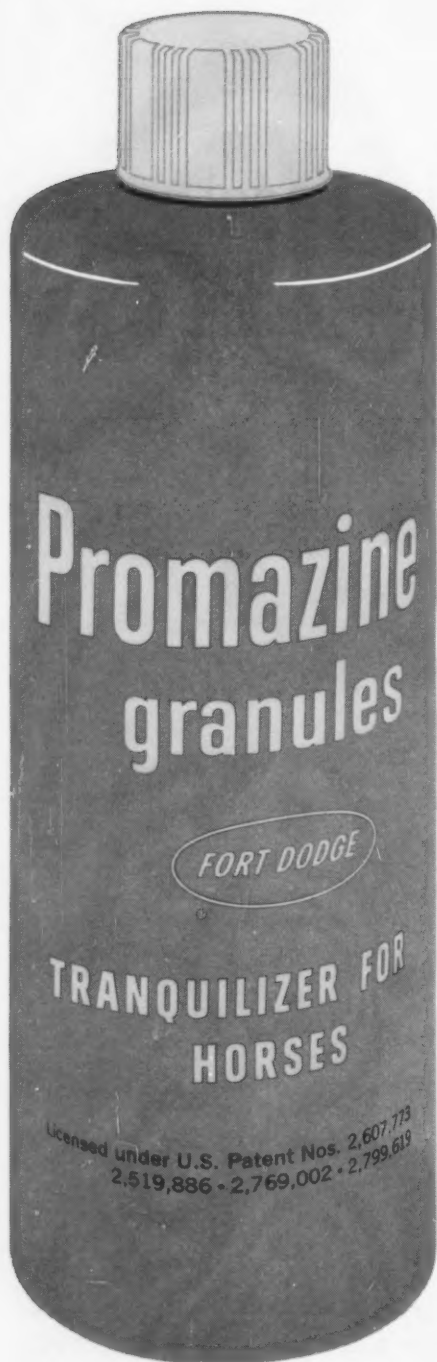
has both



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the tranquilizer that is so easy to administer

mix with a bit of feed

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Promazine in granular form is indicated in breaking, training or transporting horses. Also in minor surgery in which anesthesia is not needed; in nonsurgical procedures such as shoeing; or as a preanesthetic, to augment the action, induce smoother induction. See direction circular for dosage and precautions. Supplied: 12/8 oz.

Fort Dodge Laboratories, Fort Dodge, Iowa



references:

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2. Stucki, B. *Western Vet.*, 5:15 (1958).
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Journal

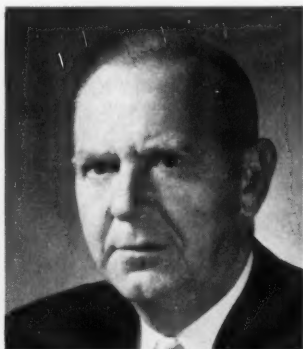
OF THE
AMERICAN VETERINARY
MEDICAL ASSOCIATION

Message from the General Chairman, Committee on Local Arrangements—98th Annual AVMA Meeting

The veterinarians of the State of Michigan and the City of Detroit are proud and happy to extend the heartiest of greetings and welcome to their professional associates of North America. We sincerely hope that your attendance at the annual meeting of AVMA in Detroit, August 20-24, 1961, will be educational, profitable, and enjoyable.

short distance from the downtown area of Detroit.

The entire meeting will undoubtedly be one of the finest meetings to ever take place in the history of AVMA. The scientific programs will be of the finest caliber; the exhibits will be displayed in the finest taste; and the social program will provide the finest entertainment for you and your family.



Chairmen of the Committee on Local Arrangements—Dr. Robert F. Willson (center) general chairman; Dr. J. F. Donovan (left) and Dr. G. T. McCarty (right), vice-chairmen.

The AVMA has the honor of being one of the first associations to meet at beautiful Cobo Hall. This convention area is one of the most modern convention halls in the world. No expense has been spared to provide every comfort for those who attend the meetings. Cobo Hall is located a

All of the committees have worked hard to plan a great meeting for you.

Those of us in Detroit are anxiously waiting to welcome you to our City in order to show you the finest time you have ever had in your life.

S/ROBERT F. WILLSON, *General Chairman*

AVMA Officers, 1960-1961

President—E. E. Leasure, Manhattan, Kan.
President-Elect—Mark L. Morris, Allenspark, Colo.
Vice-President—C. M. Rodgers, Blandinsville, Ill.
Executive Secretary—H. E. Kingman, Jr., Chicago, Ill.
Treasurer—H. E. Kingman, Jr., Chicago, Ill.

Executive Board

(Year in which term expires is shown in parentheses)

Chairman—Jack O. Knowles (1965), Miami, Fla.
District I—Myron G. Fincher (1962), Ithaca, N. Y.
District II—Mark W. Allam (1963), Philadelphia, Pa.
District III—Jack O. Knowles (1965), Miami, Fla.
District IV—H. B. Roberts (1965), Cleveland, Ohio.
District V—E. A. Woelffer (1963), Oconomowoc, Wis.
District VI—Don H. Spangler (1966), Atwater, Minn.
District VII—C. E. Hofmann (1964), Tulsa, Okla.
District VIII—Dan J. Anderson (1961), Fort Worth, Texas.
District IX—Vyrle D. Stauffer (1964), Arvada, Colo.
District X—Joseph M. Arburua (1961), San Francisco, Calif.
District XI—Clifford A. Bjork (1966), Portland, Ore.
District XII—J. A. Henderson (1962), Guelph, Ont.

EX OFFICIO MEMBERS OF THE EXECUTIVE BOARD

E. E. Leasure (1962), Manhattan, Kan.
Mark L. Morris (1963), Allenspark, Colo.
S. F. Scheidy (1961), Bryn Mawr, Pa.

Board of Governors

Jack O. Knowles, *Chairman*; E. E. Leasure, Mark L. Morris.

Advisory Committee—AVMA House of Delegates

Niel W. Pieper, Connecticut, *Chairman* (1962)
Keith D. Lassen, Arizona (1962)
A. E. Coombs, Maine (1963)
A. G. Misener, Illinois (1961)
C. D. Lee, Iowa (1961)
C. D. Van Houweling, Washington, D. C. (1962)
R. R. Miller, Washington, D. C. (1963)

House of Delegates

(As of June 1, 1961)

	Delegate	Alternate
Alabama	W. P. Monroe	R. O. Moore
Arizona	K. O. Lassen	
Arkansas	W. L. Thomas	Thayer D. Hendrickson
California	John B. Carricaburu	E. H. Houchin
Colorado	Francis T. Candlin	Harold J. Hill
Connecticut	Niel W. Pieper	Edwin Laitinen
District of Columbia	C. D. Van Houweling	J. Raymond Currey
Delaware	Clarence A. Woodhouse	A. S. Cosgrove
Florida	Peter S. Roy	Hoyt Hall
Georgia	Clay C. Von Grempe	T. J. Jones
Hawaii	Wallace T. Nagao	Wilson M. Pang
Idaho	A. P. Schneider	J. W. Bailey
Illinois	A. G. Misener	A. R. Bott
Indiana	Frank R. Booth	Raymond W. Worley
Iowa	C. D. Lee	F. D. Wertman
Kansas	Marvin J. Twiehaus	Forrest L. Hart
Kentucky	H. A. Gray	Joe C. Luckett
Louisiana	W. T. Oglesby	R. B. Lank
Maine	A. E. Coombs	Langdon F. Davis
Maryland	Harold E. Schaden	Milton P. Sause
Massachusetts	Edgar Tucker	Paul Granholm
Michigan	B. V. Alfredson	William A. Rader
Minnesota	R. Leland West	H. H. Kanning
Mississippi	Andy Crawford	J. V. Duckworth
Missouri	Paul L. Spencer	A. D. Glover
Montana	H. E. Furgeson	
Nebraska	E. W. Peck	C. B. Schwab
Nevada	John L. O'Harra	Murray H. Phillipson
New Hampshire	Lionel Trudel	Eugene R. Hussey
New Jersey	John R. McCoy	Robert R. Shomer
New Mexico	O. J. Rollag	Lloyd Skow
New York	Harry G. Hodges	C. H. Hoppenstedt
North Carolina	Martin P. Hines	Edward G. Batte
North Dakota	Delbert D. Clark	Lloyd G. Best
Ohio	A. G. Madden	B. W. Kagy
Oklahoma	Lewis H. Moe	J. D. Savage
Oregon	D. H. Jones	S. E. McGough
Pennsylvania	Raymond C. Snyder	J. Robert Brown
Rhode Island	George Dillenbeck	Ralph Grusmark
South Carolina	M. R. Blackstock	B. C. McLean
South Dakota	D. F. Rigo	H. K. Caley
Tennessee	W. C. Cook	H. W. Connaughton
Texas	James R. Saunders, Jr.	Alec C. Sears
Utah	E. A. Tugaw	Wayne Binns
Vermont	David Baldwin	Edward Melby, Jr.
Virginia	O. F. Foley	O. L. Boyd
Washington	Chet R. Griffith	Don W. Clarke
West Virginia	Leo Meyer	T. P. From
Wisconsin	Dale E. Kelley	Charles J. Gurneau
Wyoming	V. J. Humphreys	Brinton L. Swift
National Association of Federal Veterinarians	F. L. Herchenroeder	E. E. Saulmon
Canal Zone	Robert G. Matheney	Louis Fink
Puerto Rico	Herbert R. Gomez	Carlos J. Cardona
Alberta	J. E. Rattray	W. G. Harrison
British Columbia	D. A. Perry	P. L. Stovell
Manitoba		
New Brunswick	L. E. McQuinn	
Nova Scotia	E. E. I. Hancock	
Ontario	J. M. Ian Glenroy	
Quebec	Julius Frank	
Saskatchewan	E. E. Carlson	J. C. McLissac
Army	Russell McNellis	Wayne D. Shipley
Air Force	Robert R. Miller	W. M. Van Sant

Executive and Legislative Sessions

Sheraton-Cadillac Hotel

Wednesday, August 16

All Day — Board of Governors — *Michigan Room*

Thursday, August 17

9:00 a.m. Executive Board, first session—*Sheraton Room*
1:30 p.m. Executive Board, second session—*Sheraton Room*
8:00 p.m. Executive Board, third session—*Sheraton Room*

Friday, August 18

9:00 a.m. Executive Board, fourth session—*Sheraton Room*
1:30 p.m. Advisory Committee to the House of Delegates—*City Room*
1:30 p.m. Board of Governors—*Michigan Room*

Saturday, August 19

9:30 a.m. House of Delegates, first session—*Founders Room*
2:00 p.m. House Reference Committees:
No. 1—Reports of Officers—N. W. Pieper, *Chairman*
No. 2—Public Relations and Veterinary Service—A. E. Coombs,
Chairman
No. 3—Veterinary Education and Research—A. G. Misener,
Chairman
No. 4—Internal Affairs—C. D. Van Houweling, *Chairman*
No. 5—Legislation—K. O. Lassen, *Chairman*
No. 6—Veterinary Military Affairs and Civil Defense—R. R.
Miller, *Chairman*
No. 7—Miscellaneous Matters—C. D. Lee, *Chairman*
(Room Numbers to be announced)

Sunday, August 20

9:30 a.m. House of Delegates, second session—*Founders Room*
1:30 p.m. House of Delegates, third session—*Founders Room*

Thursday, August 24

12:30 p.m. Executive Board—*Sheraton Room*

Agenda—House of Delegates

Founders Room, Sheraton-Cadillac Hotel

First Session—9:30 a.m., Saturday, August 19

Second Session—9:30 a.m., Sunday, August 20

Third Session—2:00 p.m., Sunday, August 20

Order of Business

Presiding: President-Elect—Mark L. Morris

Call to Order

Roll Call

1. Presentation of Minutes—1960 Session
2. President's Address—E. E. Leasure
3. Report of House Advisory Committee (acting as Reference Committee on Rules and Procedures)
4. Proposals for Honorary Membership
5. Proposals for Affiliate Membership
6. Introduction of Guests
7. Reports of Officers:
 - a. Treasurer—H. E. Kingman, Jr.
 - b. Executive Board—Jack O. Knowles, *Chairman*
 - c. Executive Secretary—H. E. Kingman, Jr.
8. Reports of Councils:
 - a. Judicial
 - b. Education
 - c. Research
 - d. Veterinary Service
 - e. Biological and Therapeutic Agents
 - f. Public Health and Regulatory Veterinary Medicine
9. Introduction of Resolutions
10. Amendments to Constitution and Bylaws
11. Nomination of Officers
12. Election of Council and House Committee Members
13. Action on Proposals for Affiliate and Honorary Members
14. Unfinished Business
15. New Business
 - a. Report of Reference Committees
 - 1) Reports of Officers
 - 2) Public Relations and Veterinary Service
 - 3) Veterinary Education and Research
 - 4) Internal Affairs
 - 5) Legislation
 - 6) Veterinary Military Affairs and Civil Defense
 - 7) Miscellaneous Matters
 - b. Other New Business

Adjournment

Committee on Local Arrangements

Robert F. Willson, *General Chairman*

Leonard Schreiber, *Secretary*

J. F. Donovan, *Vice-Chairman in charge of:*

Golf—Leon V. Jones

Television—Charles P. Hodder (small animal)

David J. Ellis (large animal)

Publicity—Robert M. Stone

G. T. McCarty, *Vice-Chairman in charge of:*

Transportation—W. Kenneth McKersie

Entertainment—G. T. McCarty

Women's Activities—Mrs. Leonard Schreiber,
Chairman

Mrs. Jack H. McClure, chairman, luncheon

Mrs. S. R. Purvis, chairman, teen activities

Mrs. J. Reaume, chairman, subteen activities

Mrs. A. W. Emery, chairman, tea, reception



Leon V. Jones



Robert M. Stone



Leonard Schreiber



G. T. McCarty



W. K. McKersie



Charles P. Hodder



David J. Ellis



Mrs. J. H. McClure



Mrs. L. Schreiber



Mrs. S. R. Purvis



Mrs. A. W. Emery



Mrs. J. Reaume

Message from the Chairman of the Committee on Women's Activities

It gives me great pleasure to extend a personal invitation to all the wives, mothers, sisters, and children of veterinarians to visit our fair city of Detroit, the motor capital of the world, for the 98th Annual Meeting of the American Veterinary Medical Association.

So often, when visiting a city that is strange to us, we simply don't know where to go, what to do, or what to see. Such experiences make visiting strange places seem disappointing. That will not happen when you come to our city. We want you to enjoy your stay here, so while the men are preoccupied with convention business, we have planned a program especially for you. We hope your visit will be exciting, interesting, and just plain good fun.

The Sheraton-Cadillac Hotel has been designated as our headquarters hotel, with all our activities originating there.

On our proposed agenda is a sight-seeing tour of Greenfield Village, a most fascinating and historic place. Greenfield Village is owned and maintained by the Ford Foundation, which also maintains the world-famous Henry Ford Museum, dedicated to industrial history and located on the Greenfield Village grounds. The entire family will enjoy visiting the "Village." We have also planned a visit to our zoo. The Detroit Zoological Park which, incidentally, is one of the largest natural habitat zoos in this country. For teenage girls who will be in attendance, there will be a spectacular "back-to-school" fashion show in the J. L. Hudson Company auditorium. The J. L. Hudson Company is the largest department store in Detroit

and one of the largest in the United States. You will find that shopping areas are only a "stone's throw" from the hotel. A teen coke dance and party will be held at the hotel and also a puppet show for the younger crowd.

For our visitors interested in foreign items, we have nearby Windsor, Ontario, Canada, located only a 10-minute distance from our headquarters hotel. Our foreign visitors will need their passports and naturalized citizens will need their citizenship papers, if they are interested in visiting Canada. Exotic and beautiful items from England, France, and other European countries can be purchased in Canada, with items priced at \$10.00 and under, duty free.

Detroit has extensive parks, including the famous Belle Isle situated in the Detroit River. In the metropolitan area there are many other parks, drives, and beach facilities which you may want to visit.

All our activities have been planned so that they will not interfere with our business meetings, and our teen and subteen programs have been arranged to give "Mom" free time to attend these meetings.

Many other interesting and entertaining places are located in our City of Detroit, so be sure to attend the meeting in August and try to plan your vacation around the meeting, so you can take in some of the wonderful places located in the "water wonderland," the State of Michigan.

s/(Mrs. L.) Pauline Schreiber,
Chairman of Women's Activities



At Detroit's unique Children's Zoo, children may help feed tame and baby animals. This family of playful seals are crowd favorites.

Message from the President of the Women's Auxiliary

A cordial invitation is extended to all wives of AVMA members to come to Detroit and participate in all of the activities being planned for the 98th annual meeting.



Mrs. E. E. Leasure, President

The Women's Auxiliary to the AVMA will hold its 44th annual meeting at this same time and I would want all wives attending the meeting to understand that they are welcome. In fact, we urge them to attend the business sessions of the Auxiliary and learn of the many fine projects our members will report on this year.

The detailed program of the business sessions of the Women's Auxiliary is listed on page 9 of this issue of the *Journal*.

The purpose of these meetings is briefly as follows: the transaction of auxiliary business at the House of Delegates meetings; the presentation of written reports of the officers and committees and the election of officers, by the members, at the annual business meeting; the presentation, at the Auxiliary Workers' Conference, of some of the activities, problems, and interests of auxiliaries on the national, constituent, and regional levels.

Your officers have given much time and thought to planning these meetings so as to make them informational, beneficial and nonrepetitious. We sincerely believe that much is to be gained by your attendance, not only for us but for you. Won't you join us?

S/(MRS. E. E.) FRED A LEASURE.

Women's Auxiliary Officers

President—Mrs. E. E. Leasure, Manhattan, Kan.

President-Elect—Mrs. C. M. Rodgers, Blandinsville, Ill.

Vice-President for the House of Delegates—Mrs. James I. Cornwell, Asheville, N.C.

Vice-President for Publications—Mrs. A. M. Simpson, Big Spring, Texas.

Vice-President for Public Relations Media—Mrs. Don W. Clarke, Friday Harbor, Wash.

Vice-President for Student Auxiliaries and Student Awards—Mrs. George T. Dorney, Pleasant Valley, N.Y.

Vice-President for Student Loans—Mrs. Austin W. Eivers, Salem, Ore.

Secretary—Mrs. D. A. Osguthorpe, Salt Lake City, Utah.

Treasurer—Mrs. Peter S. Roy, Jacksonville, Fla.

Membership Secretary—Mrs. S. L. Hendricks, Des Moines, Iowa.

Retiring President—Mrs. Frank R. Booth, Elkhart, Ind.

Office Supervisor—Mrs. Mark L. Davenport, 600 S. Michigan Ave., Chicago 5, Ill.

Women's Auxiliary Business Sessions

Sheraton-Cadillac Hotel

Saturday, August 19

8:00 a.m. Executive Board—*Washington Room*

Sunday, August 20

8:00 a.m. Executive Board—*Sheraton Room*

1:00 p.m. Public Relations Media Committee—*Reception Room*

8:30 p.m. Student Auxiliary Delegate and Sponsors—*Normandy Room*

Monday, August 21

1:00 p.m. Research Fund Campaign, District Directors—*Sheraton Room*

3:00 p.m. Nominating Committee—*City Room*

3:30 p.m. Membership Advisory Committee—*Parlor C*

Tuesday, August 22

8:00 a.m. House of Delegates Buffet Breakfast—*Founders Room and Crystal Ballroom*

9:00 a.m. House of Delegates—to be followed by Business Meeting (all interested women are invited)—*Founders Room and Crystal Ballroom*

Wednesday, August 23

9:00 a.m. Student Auxiliary Delegates Workshop—*Sheraton Room*

9:00 a.m. Student Sponsors Workshop—*Reception Room*

9:00 a.m. Public Relations Workshop—*Normandie Room*

9:00 a.m. Membership Workshop—*Parlor C*

9:00 a.m. Research Fund Workshop—*Crystal Ballroom*

10:15 a.m. Auxiliary Workers Conference—*Crystal Ballroom*

Thursday, August 24

8:00 a.m. Executive Board—*Michigan Room*

WOMEN'S SOCIAL PROGRAM

Sunday, August 20

1:00 p.m. Registration and Exhibits Open—Cobo Hall, Hall "C"

Monday, August 21

8:30 a.m. Registration—Cobo Hall, Hall "C"

9:30 a.m. Opening Session—Cobo Hall, Room 2001-A

1:00 p.m.
to

5:00 p.m. Greenfield Village Tour

Tuesday, August 22

3:00 p.m.
to

5:00 p.m. Tea and Reception—Sheraton-Cadillac Hotel, Grand Ballroom

Wednesday, August 23

1:00 p.m. Luncheon—Statler-Hilton Hotel

8:00 p.m. Installation of Officers of Women's Auxiliary and of the AVMA; Entertainment, President's Reception and Dance—Cobo Hall



This fisherman's paradise, Recollet Falls on the French River, in Ontario is typical of the many streams and lakes in the vicinity of this year's AVMA convention site.

Teens' and Subteens' Program

Monday, August 21

1:00-5:00 p.m. Greenfield Village Tour
 11:30 a.m. Girls' "Back-to-School" Fashion Show—*J. L. Hudson Company*

Tuesday, August 22

1:00-5:00 p.m. Detroit Zoological Park

Wednesday, August 23

Afternoon Coke Dance—*Sheraton-Cadillac* (Teens)
 Puppet Show—*Sheraton-Cadillac* (Subteens)

A sentry of the Canadian Guards on duty at the Governor General's Residence, Ottawa, Ontario.



Committee on Women's Activities

Mrs. Leonard Schrieber, *General Chairman*

Mrs. Jack McClure, *Chairman, Luncheon*

Mrs. D. W. Stewart Mrs. S. R. Purvis

Mrs. R. G. Pearce Mrs. A. W. Emery

Mrs. W. Ezell Mrs. Martin Cherin

Mrs. W. Ezell, *Chairman, Tours*

Mrs. M. Cherin Mrs. James Reaume

Mrs. J. Richardson Mrs. W. K. McKersie

Mrs. A. W. Emery, *Chairman, Tea and Reception*

Mrs. S. Elko Mrs. A. A. Boden

Mrs. S. R. Kelly Mrs. O. D. Dickinson

Mrs. R. G. Pearce Mrs. D. W. Stewart

Mrs. S. R. Purvis, *Chairman, Teen activities*

Mrs. James Reaume, *Chairman, Subteen activities*

Mrs. J. Richardson, *Co-Chairman, Subteen activities*



Early American shops in Greenfield Village

Greenfield Village

There is probably no other museum in the world quite like Greenfield Village. Other museums are collections of objects. Greenfield Village is a collection of landmarks, of actual buildings in which history has been made. It has been called "a pocket-sized America."

Here is the courthouse where Abe Lincoln practiced law, a 17th century windmill from Pilgrim days, the simple clapboard laboratory in which Edison invented the incandescent electric lamp, the bicycle shop in which the Wright Brothers made parts for the first successful airplane, the house in which Noah Webster finished his dictionary, the shed in which Henry Ford built his first car — to name but a few.

Greenfield Village was the personal hobby of the late Henry Ford. A man who mistrusted written histories, he expressed his feeling for the simpler past in this history of brick and wood. To achieve his goal "to reproduce American life as

lived," he assembled more than 100 historically significant buildings from every part of America. Homes, schools, shops, and public buildings were restored and furnished exactly as they looked in their prime.

Horse-drawn carriages, sleighs in winter, carry visitors through the streets of Greenfield Village. Landscape features includes an historic covered bridge and a stern-wheeled river steamboat, the "Suwanee," which makes regular trips on a quiet, circular lagoon.

A group of artisan shops—including smithy, gristmill, glass shop, silk mill, pottery—is still operated by craftsmen in the old tradition.

A visit to Greenfield Village will be one of the highlights of your visit to Detroit. Since it is an experience you may want to share with your children, a tour for women and children has been arranged for Monday, August 21, from 1:00 to 5:00 p.m.

Point Credit for Reserve Officers

Veterinarians holding Reserve commissions in the Army Veterinary Corps, who are not on active duty, may receive reserve credit for attending the AVMA convention in Detroit. This arrangement has been approved by the Commanding General, U.S. Continental Army Command.

Such reserve officers of the Army are eligible to earn training and retirement point credit, providing such attendance at any session of the convention is for a period of not less than two hours and that the officer registers for each day he attends the Convention. Not more than one credit can be granted for any single calendar day. Provisions will be made for enrollment near the convention registration desk. At time of enrollment for the reserve credit, appropriate instructions will be provided the reserve officer concerned.

Television at Detroit

Closed-circuit television will be featured again this year at the convention and will be sponsored for the 11th consecutive year by Pitman-Moore Co. of Indianapolis. For the 10th consecutive year, the moderator will be Dr. L. E. Fisher, practitioner from Berwyn, Ill.

Committee on Television

Drs. Charles P. Hodder, Detroit, Mich., and David J. Ellis, East Lansing, Mich., are co-chairmen of the Committee on Television. They will be assisted by Drs. D. Francisco, J. McClure, R. Howard, D. Kovan, L. Morgan, S. Purvis, M. Cherin, W. Ezell, J. Sundell, G. Nurse, D. McKelvey, G. Brown, F. Rhody, L. S. McKibbin, C. Stuary, W. Brock, W. Boyd, A. Danes, R. Duryea, L. Newlin, O. Krause, K. Gingrich, C. Remer, and W. Mackie, all of Detroit.

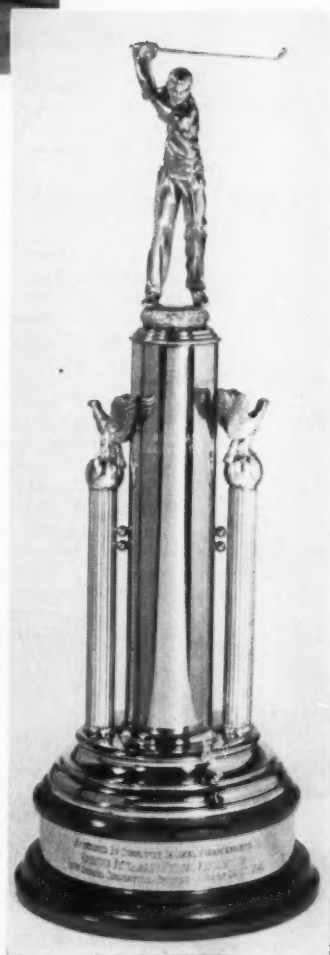


View of the Dearborn Country Club (above) where the 1961 AVMA Golf Tournament will be held. At the right is the trophy for which the teams will be competing.

AVMA Golf Tournament

Tee-off time is 12:30 p.m. Monday, August 21, for all golf enthusiasts who enjoy the challenge of long-standing rivalries and a par-72 course. At stake will be the roving AVMA Golf Trophy, won last year by Drs. Robert M. Stader and E. J. Kohler of Minnesota, and the Stader-Glenney Bowl, awarded in 1960 to Dr. B. S. Burkhardt of Colorado. The AVMA Trophy is awarded to the 2-man team from the same state or province with the lowest combined score; the Stader-Glenney Bowl, which is traditionally filled with champagne by the winner, is presented to the man having the lowest gross score.

Site of the 1961 competition will be the Dearborn Country Club just 15 minutes from downtown Detroit. The Club has been reserved for the AVMA Tournament, and caddies and electric cars will be available for all participants. Green fees are \$6.00. Transportation will be provided to and from the hotel. Bridge games will be in full swing in the Club House for all golf widows.



Group Conferences and Meetings

(Meetings in Sheraton-Cadillac Hotel unless otherwise indicated)

Thursday, August 17

- All Day American Society of Veterinary Physiologists & Pharmacologists—Brooke Lodge, Augusta, Mich.

Friday, August 18

- All Day American Society of Veterinary Physiologists & Pharmacologists—Brooke Lodge, Augusta, Mich.
All Day American Association of Veterinary Bacteriologists—Michigan State University, East Lansing.

Saturday, August 19

- All Day American Society of Veterinary Physiologists & Pharmacologists—Michigan State University, East Lansing.
All Day American Association of Veterinary Bacteriologists (Scientific Program)—Michigan State University, East Lansing.
All Day *American Association of Veterinary Clinicians—Michigan State University, East Lansing.

Sunday, August 20

- All Day American Association of Veterinary Parasitologists—Purdue University, Lafayette, Ind.
10:00 a.m. *Industrial Veterinarians Association (Business Meeting)—Normandy Room.
12:00 Noon National Veterinary Wholesalers, Inc. (Luncheon)—Michigan Room.
10:00 a.m. American College of Veterinary Toxicologists (Scientific Program)—English Room.
1:30 p.m. *Association of Deans of American Colleges of Veterinary Medicine—Sheraton Room.
1:30 p.m. National Association of Extension Veterinarians—Cobo Hall, Room 3045.
2:00 p.m. Conference of Public Health Veterinarians (Business Session)—Crystal Ballroom.
4:00 p.m. *American Board of Veterinary Public Health (Business Meeting)—Reception Room.
6:30 p.m. American Veterinary Exhibitors' Association (Banquet)—English Room.
7:00 p.m. Association of American Boards of Examiners in Veterinary Medicine—Michigan Room.
7:00 p.m. Student Chapters and Auxiliaries (Banquet)—Founders Room.

Monday, August 21

- 12:00 Noon Women's Veterinary Medical Association (Luncheon)—Parlor C.
1:00 p.m. *A.I. & Q. and A.D.E. Divisions, ARS., USDA—Cobo Hall, Room 3045.
3:00 p.m. American Veterinary Radiologist Society (Scientific Program)—Washington Room.

*Attendance limited.

Monday, August 21—continued

- 5:00 p.m. *National Phi Zeta—Sheraton Room.
- 6:30 p.m. Association of American Boards of Examiners in Veterinary Medicine (Banquet)—Normandy Room.
- 7:00 p.m. American Association of Zoo Veterinarians
—Michigan Room.
- 7:30 p.m. *American Association of Avian Pathologists
—Sheraton Room.
- 7:30 p.m. Veterinary Writers' Conference
—Founders Room.
- 7:30 p.m. American Association of Equine Practitioners
—Cobo Hall, Room 3044.
- 7:30 p.m. Society for Study of Breeding Soundness of Bulls
—Cobo Hall, Room 3036.
- 7:30 p.m. American College of Veterinary Pathologists (Symposium on Technical Methods in Pathology)—Crystal Ballroom.
- 7:30 p.m. American Association of Veterinary Nutritionists (Panel Discussion)—Grand Ballroom.
- 7:30 p.m. *National Assembly of Chief Livestock Sanitary Officials
—Parlor C.
- 8:00 p.m. National Association of Federal Veterinarians
—English Room.

Tuesday, August 22

- 7:30 a.m. *National Board of Veterinary Medical Examiners (Breakfast)—Normandy Room.
- 8:30 a.m. *U.S.L.S.A. Committee on Federal Program and Policy (Breakfast)—Parlor C.
- 9:00 a.m. American Society of Veterinary Radiology
—English Room.
- 12:00 noon American Association of Veterinary Anatomists (Luncheon)
—Sheraton Room.
- 1:30 p.m. Joint Meeting of State-Federal Regulatory Veterinarians
—Cobo Hall, Room 3042.
- 1:30 p.m. Meat Inspection Division, ARS, USDA
—Cobo Hall, Room 3040.
- 3:00 p.m. *Army Veterinary Corps—Cobo Hall, Room 3043.
- 5:00 p.m. Flying Veterinarians Association—Cobo Hall, Room 3041.
- 7:30 p.m. *American College of Veterinary Pathologists (Business Meeting)—Cobo Hall, Room 3039.
- 8:00 p.m. Teachers of Veterinary Clinical Pathology—Cobo Hall, Room 3044.
- 9:00 p.m. *American Animal Hospital Association (Board Meeting)
—City Room.

Wednesday, August 23

- 12:00 noon Industrial Veterinarians Association (Luncheon)
—Washington Room.
- 12:00 noon *American Animal Hospital Association (Luncheon)
—English Room.

Thursday, August 24

- 9:00 a.m. American Board of Laboratory Animal Medicine (Symposium on "Diagnosis of Diseases of Laboratory Rodents" in combined Session with Sections on Research and Public Health and Regulatory Veterinary Medicine)—Cobo Hall, Room 2040.
- 12:00 noon American Board of Laboratory Animal Medicine (Business Meeting)—Cobo Hall, Room 2040.

Programs of Allied Groups

American Association of Veterinary Bacteriologists

College of Veterinary Medicine, Michigan State University, East Lansing, Mich.

Friday and Saturday, August 18-19

August 18

a.m.

8:00 Registration.

8:30 Welcome—Dean W. W. Armistead.

Response—Dr. J. O. Tucker, President of AAVB.

9:00 A Progress Report on Bovine Tuberculosis Studies at Michigan State University.

W. L. Mallmann, V. A. Mallmann, and D. A. Willigan, Michigan State University, East Lansing.

10:30 Coffee break.

10:45 Germ Free Studies at Michigan State University.

C. K. Smith, D. T. Clark, and G. L. Waxler, Michigan State University, East Lansing.

12:30 Lunch.

p.m.

2:00 Business meeting.

3:30 Tours of College of Veterinary Medicine and Animal Disease Center facilities.

August 19

a.m.

8:30 Workshop and Panel Discussion

Evaluation and Goals of Teaching Veterinary Microbiology.

Leader—J. P. Newman, Michigan State University, East Lansing.

8:30 Tours of Special Interest Areas of Department of Microbiology and Public Health for those not participating in the workshop.

12:30 Lunch.

p.m.

1:30 Adjournment.

Programs are planned both days for Women and Children.

American Society of Veterinary Physiologists and Pharmacologists

To be held at Brook Lodge, Augusta, Mich., and the Upjohn Company, Kalamazoo, Mich., August 17-18, and at Michigan State University, East Lansing, August 19.

Centennial of the Morrill Act and the Land-Grant College Movement.

B. V. Alfredson, Michigan State University. National Board of Veterinary Examiners.

Melvin J. Swensen, Iowa State University.

Absorption of Immune Bodies by the Small Intestine of the Pig.

Loyal Payne, University of Nebraska.

Biochemical and Cardiovascular Effects of Pentobarbital and Chloral Hydrate in Calves.

C. M. Stowe and A. L. Good, University of Minnesota.

Effects of Insulin on Motility, Rumination, Eructation, and Toxic Indigestion in the Sheep.

John M. Bowen, Kansas State University.

Glucose Pools in Normal and Ketotic Cows (Discussion).

David Kronfeld, University of Pennsylvania.

Pharmacology of Parenteral Trypsin Administration to Sheep.

W. J. Tietz, G. D. Goetsch, and C. C. Turbes, Purdue University.

Experimental Therapy for Traumatic Injury of the Spinal Cord in Sheep.

W. J. Tietz, C. C. Turbes, and G. D. Goetsch, Purdue University.

Modification of the Uterine Strip Experiment (Demonstration).

M. C. Morrisette, Oklahoma State University.

Laboratory Experiments Modified for Student Use.

1) Assay for Testosterone

2) Glomerular Filtration Rate Determination

Reginald A. Herin, Colorado State University.

Panel Discussion on Laboratory Teaching Methods Demonstration of Improved Laboratory Teaching Techniques Utilizing Closed Circuit Television (Sat., Aug. 19).

Clyde F. Cairry, Michigan State University.

American College of Veterinary Toxicologists

English Room, Sheraton-Cadillac Hotel

Sunday, August 20

a.m.

9:30 Meeting of Council and Officers.

p.m.

1:30 Technical Session: Scientific Papers and Discussions, ALL interested AVMA members invited.

7:00 Panel Discussion of Academic Instruction in Toxicology as Related to Present Day Needs. ALL interested AVMA members invited.

Work Conference for ADE and AIQ Division Veterinarians Only

Cabo Hall, Room 3045

Monday, August 21

E. E. Saulmon, Chairman

p.m.

- 1:00 Panel Discussion—What Are We Doing in Our Exporting States to Prevent Diseased Livestock from Being Exported into Other States?

Asa Winter, E. J. Wilson, Carl E. Boyd, L. R. Barnes, A. A. Erdmann, and H. H. Irie.

- 2:00 Back-Tagging Program.

- 2:30 Malignant Lymphoma—Dr. R. C. Reisinger

- 3:00 Break.

R. P. Jones, Leader

- 3:15 Current Events in AIQ Division.

- 3:45 Status of Biological Licensing Inspection.

- 4:15 Question and Answer Period, AIQ Division.

- 5:00 Summary—Dr. R. L. Knudson, Fairfax, Va.

American Veterinary Radiology Society

Washington Room, Sheraton-Cadillac Hotel

Monday, August 21

p.m.

- 3:00 Cancer Clues from Comparative Medicine.

W. L. Simpson, M.D., scientific director, Detroit Cancer Research and professor of experimental oncology, Wayne University, Detroit.

- 3:45 Selected Radiographic Conditions in Feline Animals.

W. C. Banks, D.V.M., M.S., professor of veterinary radiology, School of Veterinary Medicine, A&M College of Texas, College Station.

- 4:30 Positioning of Animals for Radiography.

Newton B. Tennille, D.V.M., professor of veterinary radiology at Oklahoma State University, Stillwater.

The American Veterinary Radiology Society will be host at a cocktail and buffet dinner at 5:45 p.m. on Monday, August 21, for anyone wishing to attend. From 7:00 to 9:00 p.m., the AVRS will sponsor film readings; all are invited to bring radiographs which they would like to have discussed by the group.

July 1, 1961

American College of Veterinary Pathologists

Crystal Ballroom, Sheraton-Cadillac Hotel

Symposium on Technical Methods in Pathology

Monday, August 21

p.m.

- 7:30 Serial sections on 35-mm. film strip (motion picture).

- 7:50 Microincineration (motion picture).

Narrator, Samuel W. Thompson II, Major (V.C.), Denver, Colo.

- 8:10 Fluorescent Antibody (illustrated)

David L. Coffin, and Gianpaolo Maestroni, New York, N.Y.

- 8:30 Histochemistry for the Practicing Pathologist (illustrated).

Paul M. Newberne, Auburn, Ala.

- 8:50 Electron Microscopy and Its Role in Pathology (illustrated).

Adolf M. Watrach, Urbana, Illinois

- 9:10 Tissue Culture (illustrated).

James W. Newberne, Indianapolis, Ind.

American Association of Veterinary Nutritionists

Grand Ballroom, Sheraton-Cadillac Hotel

Monday, August 21

p.m.

- 7:30 Annual Meeting.

- 8:00 Protein Problems in Pigs.

C. K. Whitebair, East Lansing, Mich.

- 8:30 Panel: What Can We Do at the Grassroots Level to Improve Our Service in the Nutritional Area?

Industry—James Bailey, Atlantic, Iowa.

State Regulatory—Harry Geyer, Columbus, Ohio.

Extension—John Herrick, Ames, Iowa.

Education—C. K. Whitebair, East Lansing, Mich.

Practice—R. A. Anderson, Elkhorn, Wis.

Each panel member will be given 5 minutes to present the major problem in his specialty. This will be followed by open discussion.

American Association of Equine Practitioners

The American Association of Equine Practitioners will hold its annual mid-year business and

professional meeting the evening of Monday, August 21, during the meeting of the AVMA in Detroit.

President Teigland will give a report on the last annual meeting at Phoenix and a report on Association's and officers' activities. Feature of the meeting will be an open discussion on trends and what is new in equine practice.

The meeting is open to anyone interested in equine medicine or practice.

Meat Inspection Division, ARS, USDA

Cobo Hall, Room 3040

Tuesday, August 22

R. K. Somers, Chairman

p.m.

1:30 Frozen Foods and Meat Inspection Responsibility in Bacteriologic Controls.

P. J. Brandy, chief staff officer of Biological Control, Meat Inspection Division, Washington, D.C.

New Concepts in Residue Controls and Their Effect on Meat Inspection Routines.

K. E. Taylor, assistant staff officer for Procedures and Training, and the Meat Inspection Division's specialist in toxicology, Evansville, Ind.

Cured and Smoked Meat Processing Under New Federal Control Procedures.

S. J. Berger, assistant director, Meat Inspection Division, St. Louis, Mo.

Specification Examination of Products for Government Agencies.

H. H. Pas, chief staff officer for military servicing, Meat Inspection Division, Washington, D.C.

4:30 Adjournment.

The vigorous practice of food hygiene principles in present day meat-processing operations is an important link in our system of human and animal health protection. The Meat Inspection Division Section Program at Detroit is designed to keep all veterinary hygienists informed of the latest developments in the meat-processing field.

Examination for American Board of Laboratory Animal Medicine

Applications are now being accepted for the 1961 A.B.L.A.M. examination to be held at the time of the AVMA meeting in Detroit, Mich., in August. To be considered for this examination, applicants must apply before Aug. 1, 1961—sooner, if possible.

The following general prerequisites must be met before any candidate is eligible to undertake the examination:

a) Be a graduate of a veterinary school recognized by the American Veterinary Medical Association.

b) Be a member in good standing of the American Veterinary Medical Association.

c) Have an M.S. or equivalent degree from a recognized institution of learning and at least five (5) years of experience in laboratory animal medicine and have made a distinct contribution to the advancement of laboratory animal medicine. Three (3) years of additional experience along with recognized accomplishments in laboratory animal medicine may be substituted for the advanced degree.

d) Submit with his application a written statement containing all pertinent information necessary to enable the Board to judge the suitability of the candidate's abilities, training, and experience to undertake the examination.

Application forms and further information may be obtained by writing to: Dr. Robert J. Flynn, Secretary-Treasurer, American Board of Laboratory Animal Medicine, Argonne, Ill.

Opening Session

Room 2001, Cobo Hall

Monday, August 21

9:30 a.m.—*Musical Selections*

Call to Order—President E. E. Leasure

Invocation—Rev. Franz A. Ollerman, St. Timothy's Episcopal Church

Address of Welcome—The Honorable Louis C. Miriani, Mayor of the City of Detroit

Introduction of Guests

Greetings from Women's Auxiliary—Mrs. E. E. Leasure, President

Address—President-Elect Mark L. Morris

Presentation of Awards:

12th International Veterinary Congress Prize

Borden Award and Medal

AVMA Award and Medal

Gaines Award

Practitioner Research Award

Announcements

Adjournment

General Convention Entertainment Detroit, Michigan

Monday, August 21, 12:30 p.m.

AVMA Golf Tournament—Dearborn Country Club

Tuesday, August 22, 6:30 p.m.

Alumni Dinners—Hotels to be announced

Wednesday, August 23, 8:00 p.m.

President's Reception and Dance

**Installation of Officers of the AVMA and Women's
Auxiliary**

Entertainment

COBO HALL

Section Officers—Detroit Session

Section on Large Animals



John W. Kendrick, Co-Chairman



L. E. Boley, Co-Chairman



Gabel H. Conner, Secretary

Section on Small Animals



F. P. Sattler, Co-Chairman



Alfred G. Schiller, Co-Chairman



Robert G. Schirmer, Secretary

Section on Poultry



H. E. Adler, Chairman



B. R. Burmester, Secretary

Section on Research



N. H. Booth, Chairman



R. F. Langham, Secretary

Section on Public Health and Regulatory Veterinary Medicine



Asa Winter, Chairman



L. J. Neurauter, Vice-Chairman



W. M. Decker, Secretary

Section on Large Animals

Monday, August 21, 1961, 1:30 p.m.

Cobo Hall, Room 2001

Presiding Officers—J. W. Kendrick and L. E. Boley

First Session

- 1:30 (1) The Production of Primary Specific Pathogen-Free Pigs.
Donald K. Perry, Muncie, Ind.
- 1:50 (2) Certification and Farm Performance of Secondary SPF Pigs.
George A. Young, Norman R. Underdahl, and Louis C. Welch, Lincoln, Neb., and J. D. Caldwell, Chillicothe, Mo.
- 2:10 (3) Veterinary Service for SPF Swine Herds.
L. R. Gallentine, Gilman, Iowa.
- 2:25 Questions and Discussion.
- 2:40 Election of Section Officers
- 2:45 (4) Subacute Disorders of the Bovine Digestive Tract.
F. D. Horney, Guelph, Ont.
- 3:05 (5) The Use of Succinylcholine and Pentobarbital Sodium in the Restraint of Colts and Stallions for Castration.
J. D. Wheat, Davis, Calif.
- 3:30 (6) Etiologic Studies on Shipping Fever. III. An Attempt to Determine the Significance of Parainfluenza 3 Virus and Pasteurella Species.
Thomas H. Vardaman, Athens, Ga., and K. L. Heddleston, L. P. Watko, and R. C. Reisinger, Beltsville, Md.
- 3:40 (7) Ultra Short-Acting Anesthetics in the Horse.
A. A. Gabel, Columbus, Ohio.
- 4:00 (8) Parasite Control in Horses—Status of Parasitocides.
J. H. Drudge, Lexington, Ky.
- 4:20 (9) Drive-in Cattle Practice as a Part of a Group Practice.
J. J. Crouch, Glasgow, Ky.
- 4:45 Adjournment.

Section on Large Animals

Tuesday, August 22, 1961, 9:00 a.m.

Cobo Hall, Room 2001

Presiding Officers—L. E. Boley and G. H. Conner

Second Session

- 8:30 (9a) Is African Horse-Sickness a Threat to the Horse Industry in the United States?
F. D. Maurer, Washington, D.C.
- 9:00 (10) Abdominal Surgery in the Horse.
F. J. Milne, Guelph, Ont.
- 9:25 (11) Television—Intra-articular Injection of the Equine Carpus and Fetlock.
R. W. VanPelt, East Lansing, Mich.
- 9:40 (12) Care of the Foaling Mare.
W. R. McGee, Lexington, Ky.
- 10:00 (13) Television—Bacteriologic Examination of the Reproductive Tract of the Mare.
T. N. Phillips, Urbana, Ill.
- 10:10 (14) Film—Evaluation of Bull Semen.
E. J. Carroll, Fort Collins, Colo.
- 10:35 Questions and Discussion.
- 10:45 **Appointment of Nominating Committee**
- 10:55 (15) Television—Restraint in Large Animal Practice.
W. L. Stroup, Corinth, Miss.
- 11:15 (16) a) Recent Studies on Bovine Abortion in the Midwest.
Joseph Simon, Urbana, Ill.
b) Recent Studies on Epizootic Bovine Abortion in California.
Harvey J. Olander, Peter C. Kennedy, and Jack A. Howarth, Davis, Calif.
- 11:45 Questions and Discussion.
- 12:00 Adjournment.

Section on Large Animals

Thursday, August 24, 1961, 8:45 a.m.

Cobo Hall, Room 2001

Presiding Officers—J. W. Kendrick and L. E. Boley

Third Session

- 8:45 (17) Television—Correction of Vaginal Prolapse.
Arnold F. Hentschl, Harbor Beach, Mich.
- 9:00 (18) Atypical Interstitial Pneumonia of Cattle.
D. C. Blood, Guelph, Ont.
- 9:25 (19) Television—Tail Bleeding of Cattle.
C. C. Beck, East Lansing, Mich.
- 9:35 (20) What and Where Are the Economics of Bovine Mastitis Control?
G. E. Morse, Kennett Square, Pa.
- 9:55 Questions and Discussion.
- 10:10 (21) Television—Rumen Lavage.
W. D. Pouden, Wooster, Ohio, and H. E. Kingman, Sr., Mineral Bluff, Ga.
- 10:20 (22) Poisonous Plants.
John M. Kingsbury, Ithaca, N.Y.
- 10:50 (23) Fetal Mummification.
S. J. Roberts, Ithaca, N.Y.
- 11:10 (24) Television—A Test for Abomasal Displacement.
Mark P. Rines, East Lansing, Mich.
- 11:30 (25) Bovine Diarrhea-Mucosal Complex.
S. F. Rosner, Omaha, Neb., and C. J. York, Indianapolis, Ind.
- 12:00 Adjournment.

Combined Sections on Large and Small Animals

Wednesday, August 23, 1961, 1:15 p.m.

Cobo Hall, Room 2001

Presiding Officers—F. P. Sattler and R. G. Schirmer

- 1:15 Motion Picture—"Telephone Management."
 Courtesy of Bell Telephone Company
- 1:30 (26) Use of an Organic Phosphate Insecticide for Control of the
 Brown Dog Tick.
 Lorin R. Stelzer, Richmond, Calif.
- 2:00 (27) A P.C.O. in the Veterinary Hospital.
 Harry Katz, Pittsburgh, Pa.
- 2:30 (28) Business Management of the Veterinary Practice.
 Charles Elwell, Fullerton, Calif.
- 3:00 (29) Why I Am an American.
 R. C. S. Young, Detroit, Mich.
- 3:35 (30) Leukocyte Responses to Disease in Various Domestic Animals.
 O. W. Schalm, Davis, Calif.
- 4:00 (31) A Look Inside Our Group Practice.
 Ralph B. Lind, Canton, Ohio.
- 4:30 Adjournment.

Section on Small Animals

Tuesday, August 22, 1961, 1:15 p.m.

Cobo Hall, Room 2001

Presiding Officers—F. P. Sattler and A. G. Schiller

First Session

Symposium on the Respiratory System

- 1:15 (32) Television—The Clinical Examination of the Respiratory System.
R. C. Vierbeller, Whittier, Calif.
- 1:35 (33) Television—The Examination of the Upper Respiratory Tract Under Anesthesia.
J. R. Dinsmore, Glenview, Ill., and Myron Bernstein, Glencoe, Ill.
- 1:55 (34) Therapeutic Principles in Extrathoracic Respiratory Involvement.
George F. Nixon, Alliance, Ohio.
- 2:15 (35) Television—Ventilation Procedures in the Dog and Cat.
George G. Freier, Benton Harbor, Mich.
- 2:35 (36) Film—Respiratory Distress Problems of the Brachycephalic Dog.
Harmon C. Leonard, Cheshire, Conn.
- 3:00 **Announcements and Appointment of the Nominating Committee**
- 3:10 (37) Radiographic Examination of the Lower Respiratory Tract and Thorax.
U. V. Mostosky, East Lansing, Mich.
- 3:40 (38) Therapeutic Principles in Intrathoracic Respiratory Involvement.
Richard W. Huff, Birmingham, Mich.
- 4:00 (39) Television—Surgical Techniques in Intrathoracic Respiratory Disease.
T. H. Brasmer, Danville, Ill.
- 4:30 (40) Convalescent Care of the Patient After Thoracic Surgery.
Phillip T. Pearson, Ames, Iowa.
- 4:50 Adjournment.

Section on Small Animals

Wednesday, August 23, 1961, 8:30 a.m.

Cobo Hall, Room 2001

Presiding Officers—F. P. Sattler and R. G. Schirmer

Second Session

- 8:30 (41) Motion Picture—"Rescue Breathing."
Courtesy Civil Defense Agency.
- 9:00 (42) Anesthetic Deaths—Your Biggest Problem.
Ferdinand Greifenstein, Detroit, Mich.
- 9:30 (43) Tissue Stapling Techniques.
Robert P. Knowles, Miami, Fla.
- 10:00 (44) Behavior Studies in Dogs.
Clarence J. Pfaffenberger, San Rafael, Calif.
- 10:30 (45) Television—Surgical Correction of Faulty Ear Carriage in
Erect-Eared Dogs.
W. F. Keller, East Lansing, Mich.
- 10:55 Report of the Nominating Committee
- 11:05 (46) Successful Collection of Your Small Accounts.
Robert L. Borsos, Kalamazoo, Mich.
- 11:30 (47) Superficial Radiation Therapy in Small Animal Practice.
Bruce Sharp, Hobart, Ind.
- 12:00 Adjournment.

Section on Research

Monday, August 21, 1961, 1:30 p.m.

Cobo Hall, Room 2040

Presiding Officers—N. H. Booth and R. F. Langham

First Session

- 1:30 (48) The Correlation Between the Vascular Supply of the Brain and Cerebral Function in Ruminants.
B. A. Baldwin and F. R. Bell, London, England.
- 1:50 (49) Green Light on Rabies Diagnosis—The Fluorescent Rabies Antibodies Test.
James L. McQueen, Ann Arbor, Mich.; and J. E. Scatterday and N. J. Schneider, Jacksonville, Fla.
- 2:10 (50) Rapid Detection of Coronary Occlusions by Stereoscopic Angiography.
George C. Christensen and Frank L. Campeti, Lafayette, Ind.
- 2:30 (51) Pathogenesis of Experimental *Leptospira pomona* Infections in Pregnant Heifers.
R. L. Morter, L. C. Ferguson, and R. F. Langham, East Lansing, Mich.

2:45 Appointment of Nominating Committee

- 2:50 (52) Enzymatic Causes of Viscid Ruminal Contents—Their Relationship to Bloat.
Roy E. Nichols, Madison, Wis.
- 3:10 (53) Biologic Effects of Sr^{90} in Miniature Swine.
R. O. McClellan, W. J. Clarke, N. L. Dockum, V. G. Horstman, J. R. McKenney, Glenda Vogt, and L. K. Bustad, Richland, Wash.
- 3:35 (54) Design Considerations for Experimental and Clinical Studies.
Spencer M. Free, Jr., Philadelphia, Pa.
- 4:15 (55) Tumors of the Eyelids and Conjunctivae. I. Palpebral Adnexal Tumors of Cattle.
Charlie N. Barron, Philadelphia, Pa., and G. T. Easley, Sulphur, Okla.
- 4:35 (56) Experimental Ornithosis in Calves.
Joseph N. Beasley, John R. Watkins, and C. H. Bridges, College Station, Texas.
- 4:55 (57) Diagnosis and Incidence of Rabies in a Selected Group of Cats.
Frank E. Mitchell, Indianapolis, Ind.
- 5:30 Adjournment.

Section on Research

Tuesday, August 22, 1961, 8:30 a.m.

Cobo Hall, Room 2040

Presiding Officers—R. F. Langham and N. H. Booth

Second Session

- 8:30 (58) The Bronchial Artery in Relation to the Experimental Production of Emphysema.
Walter S. Tyler, Gerald L. Crenshaw, Donald W. Edwards, Murray E. Fowler, Richard F. McLaughlin, Edward M. Parker, and George H. Reifstein, Davis, Calif.
- 8:50 (59) Studies of Infectious Bronchitis Virus Before and After Separation from a Cell Attachment and Growth Factor.
Virginia H. Maltmann and Charles H. Cunningham, East Lansing, Mich.
- 9:10 (60) Measurement of Porcine Plasma Volume Using T-1824 Dye.
R. B. Talbot and M. J. Swenson, Ames, Iowa.
- 9:30 (61) Effects of Certain Adrenocortical Hormones on Metabolism in Rat Liver Homogenates.
Dennis D. Goetsch, L. E. McDonald, Stillwater, Okla.
- 9:50 (62) Studies on Myoclonia Congenita in the Pig.
Calvin C. Turbes, B. Abreu, and Alice J. Richards, Lafayette, Ind.
- 10:15 Election of Section Officers
- 10:20 (63) Experimental Pathologic Anatomy of so-called "Radial Paralysis" in the Dog.
John G. Bowne and Robert Getty, Ames, Iowa.
- 10:40 (64) Experimental Porcine Leptospirosis.
John J. Clark, Kalamazoo, Mich., and Jay H. Sautter, St. Paul, Minn.
- 11:00 (65) Comparative Serologic Responses of Cattle Exposed to Virulent *Brucella abortus*.
George Lambert and T. E. Amerault, Beltsville, Md.
- 11:20 (66) Studies on Urea Hydrolysis in Birds and Mammals.
Willard J. Visek, Chicago, Ill.
- 11:40 (67) Comparison of Treatments of Hemorrhagic Shock Under Deep Pentobarbital Anesthesia.
Clyde F. Cairy, East Lansing, Mich., and V. M. Ramaswamy, Madras, India.
- 12:10 Adjournment.

Combined Sections on Research and Public Health and Regulatory Veterinary Medicine

Wednesday, August 23, 1961, 1:00 p.m.

Cobo Hall, Room 2040

Presiding Officers—M. M. Nold and Max Decker

First Session

- 1:00 Opening Remarks by Presiding Official.
- 1:30 (68) Graphic Presentation, an Essential Part of any Communication.
Wilfred L. Veenendaal, East Lansing, Mich.
- 2:15 (69) Stimulating Veterinary Participation in Medical Research.
Moderator—Walter R. Krill, Columbus, Ohio.
Our National Needs—The Impetus of Veterinary Research.
Charles M. Barnes, Washington, D.C.
Communications Breakdown.
James Lieberman, Atlanta, Ga.
- 3:00 (70) The National Academy of Sciences Subcommittee for the Assessment of Damage to Livestock from Radioactive Fallout.
John H. Rust, Chicago, Ill.
- 3:30 (71) Veterinary Participation in the Nation's Space Life Sciences Program.
G. Dale Smith, Washington, D.C., and John D. Mosely, Holloman Air Force Base, N.M.
- 4:15 Adjournment.

Combined Sections on Research and Public Health and Regulatory Veterinary Medicine

Thursday, August 24, 1961, 9:00 a.m.

Cobo Hall, Room 2040

Presiding Officers—G. Lord and R. F. Langham

Second Session

A Symposium on the Diagnosis of Diseases of Laboratory Rodents

- 9:00 (72) Diagnosis of 2 Important Infections (*Pseudomonas* and *Ectromelia*) of the Laboratory Mouse.
Robert J. Flynn, Argonne, Ill.
- 9:40 (73) Chronic Respiratory Diseases in Rats and Mice.
John B. Nelson, New York, N.Y.
- 10:10 (74) Staphylococcic, Streptococcic, and *Corynebacterium* Infections in Mice.
L. R. Christensen, New York, N.Y.
- 10:50 (75) Diagnosis of Eperythrozoonosis and Hemobartonellosis in the Rat and Mouse.
Richard A. Griesemer, Columbus, Ohio.
- 11:15 (76) Salmonellosis in Mice—Diagnostic Procedures.
W. L. Margard, A. C. Peters, N. Dorko, John H. Litchfield, and R. S. Davidson, Columbus, Ohio.
- 11:45 (77) The Diagnosis of Some Insidious Viral Infections in Mice.
Wallace P. Rowe, Bethesda, Md.
- 12:15 Adjournment.

This symposium was organized through the cooperation of the American Board of Laboratory Animal Medicine.

Section on Public Health and Regulatory Veterinary Medicine

Tuesday, August 22, 1961, 8:30 a.m.

Cobo Hall, Room 2043

Presiding Officers—Asa Winter and Max Decker

First Session

- 8:30 Opening Remarks.
Asa Winter, Lansing, Mich.
- 8:45 (78) The New Era of Veterinary Education.
W. W. Armistead, East Lansing, Mich.
- 9:30 (79) International Contributions of Veterinary Medicine.
Edward H. Cushing, Washington, D.C.
- 10:00 (80) The Threat of Foreign Animal Diseases.
J. J. Callis, Greenport, L.I., N.Y.
- 10:45 (81) Modern Transportation—A Challenge to the Veterinarian.
W. L. Popbam, Washington, D.C., and Robert S. Sharman, Washington, D.C.

Appointment of Nominating Committee

- 12:00 Adjournment.

Section on Public Health and Regulatory Veterinary Medicine

Wednesday, August 23, 1961, 8:30 a.m.

Cobo Hall, Room 2043

Presiding Officers—Max Decker and Asa Winter

Second Session

- 8:30 (82) Role of the Veterinarian in Nuclear Warfare.
C. K. Sbafer, Battle Creek, Mich.
- 9:15 (83) Present Status of Tuberculosis Control in Man.
John L. Isbister, Lansing, Mich.
- 9:40 (84) Progress Report on Bovine Tuberculosis Research at Michigan
State University.
W. L. Mallmann, Lansing, Mich.
- 10:05 (85) How Meat Inspection Aids Tuberculosis Control.
R. K. Somers, Washington, D.C.
- 10:30 (86) Status of Tuberculosis Eradication in Livestock.
A. F. Ranney, Washington, D.C.
- 10:55 Questions and Discussion.
- 11:15 (87) The Challenge of Veterinary Public Health.
Leonard M. Schuman, Minneapolis, Minn.
- 11:45 Report of Nominating Committee
- 12:15 Adjournment.

Section on Poultry

Tuesday, August 22, 1961, 1:00 p.m.

Cobo Hall, Room 2043

Presiding Officers—H. E. Adler and B. R. Burmester

First Session

- 1:00 (88) Fluorescent Staining Procedures in Ornithosis Research.
Richard W. Moore, College Station, Texas.
- 1:20 (89) The Chicken-Embryo-Lethal-Orphan (CELO) Virus as a Tissue Culture Contaminant.
Vance J. Yates, Dharam V. Ablashi, Pei Wen Cbang, and Dorothy E. Fry, Kingston, R.I.
- 1:40 (90) Mass Interference of Infectious Bronchitis Virus with Newcastle Disease Virus.
L. G. Raggi and George G. Lee, Davis, Calif; Vali Sobrab-Haghighat, Tehran, Iran.
- 2:05 (91) Some Properties of Infectious Bronchitis Virus as Determined by Thermal and Formalin Inactivation.
Indra P. Singh and Charles H. Cunningham, East Lansing, Mich.
- 2:25 (92) Congenital Transmission and Contact Spread of Avian Leukosis.
Harry Rubin, Berkeley, Calif.
- 2:55 (93) A Comparison of the Effect of Heat and Ionizing Radiation on the Viability and Hemagglutinating Properties of Several Strains of Newcastle Disease Virus.
M. S. Hofstad and J. C. Picken, Jr., Ames, Iowa.

3:20 Appointment of Nominating Committee

- 3:30 (94) Preliminary Report on Experiments with Immunity Following Laryngotracheitis Vaccination.
M. S. Cover, W. J. Benton, and W. C. Krauss, Newark, Del.
- 3:50 (95) Studies on Avian Encephalomyelitis. V. Development and Application of an Oral Vaccine.
B. W. Calnek, Patricia J. Taylor, and Martin Seroian, Amherst, Mass.
- 4:15 (96) Variation of Resistance to Avian Encephalomyelitis in Breeding Flocks.
R. F. Gentry and M. Mitrovic, University Park, Pa.
- 4:35 (97) Susceptibility of Turkeys to Duck Hepatitis Virus and Serologic Comparison to Hepatitis Virus of Turkeys.
Dennis P. Rabn and Lyle E. Hanson, Urbana, Ill.
- 5:00 Adjournment.

Section on Poultry

Wednesday, August 23, 1961, 9:00 a.m.

Cobo Hall, Room 2040

Presiding Officers—B. R. Burmester and H. E. Adler

Second Session

- 9:00 (98) Acquired Resistance to *Capillaria obsignata* in Chickens.
M. N. Frazier, Storrs, Conn.
- 9:20 (99) Bluecomb Disease of Turkeys. VI. Characterization of an Enteric Virus-like Agent Isolated from Bluecomb-Infected Turkeys.
C. T. Larsen, R. A. Ball, and B. S. Pomeroy, St. Paul, Minn.
- 9:45 (100) Egg Transmission of PPLO by Medicated Hens.
P. P. Levine and Julius Fabricant, Ithaca, N.Y.
- 10:10 (101) Bacterial Endocarditis in Chickens and Turkeys.
W. B. Gross, Blacksburg, Va.
- 10:35 Election of Officers
- 10:45 (102) Disease Conditions Currently Causing Poultry Condemnations.
D. DeCamp, F. C. Love, and G. S. McKee, Washington, D.C.
- 11:10 (103) Poultry Inspection Research—A Review of a 3-Year Study.
W. W. Sadler and H. E. Adler, Davis, Calif.
- 11:35 (104) A Food Technologist Looks at Poultry Meat Inspection.
G. F. Stewart, Davis, Calif.
- 12:00 Adjournment.

The Scientific Exhibits

The scientific exhibits at the Detroit meeting have been furnished by several educational institutions, governmental agencies, and individuals. They will be located in Cobo Hall with the commercial exhibits.

All veterinarians are urged to visit these exhibits which are designed to portray important aspects of problems requiring the profession's attention.

Air Force Veterinary Support for the Sentry Dog Program

*Lt. Col. Lloyd J. Neurauter, Lt. Col. Russell M. Madison, and
Lt. Col. Frederick Weil*

U.S. Air Force Medical Service, Washington 25, D.C.

Photographs will show the impact of the Sentry Dog Program on Air Force security and the role of the veterinarian in maintaining the security capability of the dog — medical care, handling, and feeding.

Anaplasmosis of Cattle

*Miodrag Ristic and A. M. Watrach
University of Illinois, College of Veterinary Medicine, Urbana*

A demonstration, by means of graphs, charts, photomicrographs, and electron micrographs, of the incidence and distribution of anaplasmosis in the U.S.A., mode of transmission, mechanism of reproduction, serologic and histochemical characteristics, and the ultrastructure of the causative agent.

Army Veterinarian in Research

*Lt. Col. Harvey L. Rubin
Walter Reed Army Institute of Research, Washington 12, D.C.*

A presentation of the role of the Army Veterinary Corps in Army Medical Service, Quartermaster and Chemical Corps Research and Development. Support in fields of microbiology, radiobiology, nuclear effects, pathology, surgery, laboratory animal medicine, and subsistence will be demonstrated.



Detroit's Skyline and River Front

Behind the Scenes of Bioastronautical Research

*Harald von Beckh
Aeromedical Field Laboratory, Holloman AFB, New Mexico*

Photographs depict the testing of equipment and G protection by immersion experiments on the Daisy decelerator and the high-speed track; biologic effects of cosmic radiation; Mercury-Redstone flight by Ham; and the medical care of, and behavioral research on, test animals.

Be Sure—Read the Label

*K. F. Johnson and Kenneth Goodrich
Meat Inspection Division, ARS-USDA, Washington 25, D.C.*

The exhibit explains how the Meat Inspection Division protects the consumer and assures him of wholesome, disease-free, honestly labeled products.

Canine Histoplasmosis and Blastomycosis

*D. Maksic, A. M. Watrach, H. E. Rhoades, and E. Small
University of Illinois, College of Veterinary Medicine, Urbana*

Drawings, illustrations, and Kodachrome slides show geographic distribution, etiology, mode of spread, and symptomatology of these diseases. Diagnosis, differential diagnosis, and prognosis are also discussed.

Diagnostic Radiography of the Canine Thorax

*D. Maksic and E. Small
University of Illinois, College of Veterinary Medicine, Urbana*

A series of radiographic prints showing: (1) traumatic injuries of the chest; (2) bacterial, viral, mycotic, neoplastic, and foreign body pneumonias, including pleuritis; (3) heart diseases and extrapulmonary neoplasms.

Diagnostic Radiography of the Canine Hip

*D. Maksic and E. Small
University of Illinois, College of Veterinary Medicine, Urbana*

This series of radiographic prints includes congenital hip dysplasia, idiopathic osteochondritis (Legg-Perthes syndrome), and traumatic injuries.

Epidemiology of Brucellosis

Communicable Disease Center, Atlanta 22, Georgia

This exhibit depicts the epidemiology of brucellosis, particularly the animal-human relationship, with emphasis upon the increasing importance of swine as a reservoir of infection.

Eradication of Animal Tuberculosis—Problem-Solution

*Animal Disease Eradication Division, ARS, and the Communicable Disease Center
U.S. Department of Agriculture, Washington, D.C., and
U.S. Public Health Service, Communicable Disease Center, Atlanta, Georgia*

This exhibit illustrates some of the problems of eradicating tuberculosis in both human and lower animals, the conditions that cause spread of infection, and the solution of some of the problems.

The Estrous Cycle of the Bitch

*K. B. Haas and Walter Ruemer
Upjohn Company, Kalamazoo, Michigan*

Pictorial panels describe the reproductive physiology of the bitch.

Experimental Production of Emphysema

*E. Fowler, G. L. Crenshaw, D. G. Edwards, W. S. Tyler, G. H. Reifenstein,
R. F. McLaughlin, and E. A. Parker
University of California, Davis*

The horse was chosen as the most desirable animal for attempts to experimentally produce chronic pulmonary emphysema in a form similar to that seen in man. One of the theories of etiology is a diminution or destruction of the nutritional blood supply to the alveoli, or interalveolar, septae. This supply was destroyed by injection of a sclerosing agent at thoracotomy. The results are demonstrated, using color transparencies.

Feline Virus Diseases

*C. J. York, J. W. Newberne, and Marion Martin
Pitman-Moore Company, Indianapolis, Indiana*

Three panels show serologic, cytologic, histologic, and clinical characteristics of various feline viruses. The laboratory differentiation of these agents includes virus isolation and study in feline kidney tissue culture, embryonating hen eggs, and susceptible kittens. Characteristic cellular changes produced by 2 groups of viruses in feline kidney tissue culture are illustrated.

Heartworm

*Albert Soltys
Animal Clinic, Nassau, Bahamas*

Preserved specimens, drawings, and color slides of dead adult *Dirofilaria immitis* are used to show time required for disintegration and for the animal body to eliminate dead worms. Fixed slides, showing differentiation between the *Dipetalonema* and *Dirofilaria* larvae (microscopic), will be on display, as well as a dog with active heartworm infection for examination of live specimens and active live larvae.

Inbred Laboratory Animals

*Cancer Chemotherapy National Service Center
National Cancer Institute, Silver Spring, Maryland*

This demonstration of the methods used to produce inbred animals for large scale research programs emphasizes the production of inbred animals at a primary genetic center and the establishment of trust stocks at secondary genetic centers in order to serve as insurance against total destruction of the primary center. This exhibit also briefly mentions the laboratory's use for special strains of inbred animals and supplies examples of the genetic background for a few selected hybrids.

Laboratory Animal Production Centers

*Pan American Health Organization/World Health Organization
Washington 6, D.C.*

Mechanisms of Hemostasis

*Alan R. Wagner and Donald A. Hoff
Warren-Teed Products Company, Columbus 15, Ohio*

Flow-sheet of the mechanisms of hemostasis depicting physiologic and chemical factors inhibiting hemostasis; also diagram of clot lysis.

A New Disease—Communications Breakdown

*United States Public Health Service, Communicable Disease Center,
Atlanta, Georgia*

This exhibit describes the breakdown of communications between and among scientists, medical professions, and the general public and suggests "treatment and cure."

Parasite Eradication Exhibit (Screwworm)

*Animal Disease Eradication Division, ARS, USDA
Washington 25, D.C.*

Depicts steps in the process of rearing, sterilizing, and releasing sterile male screwworms over infested regions of the southeastern United States. The sterile male mates with the native females; the eggs from such matings will not hatch.

Rocketing Toward Brucellosis-Free U.S.A.

Animal Disease Eradication Division, ARS, USDA, Washington 25, D.C.

This is the story of jet-age progress in the State-Federal Cooperative Brucellosis Eradication Program. Propelled by the use of scientific methods, the nation's livestock industry can hit the target, a brucellosis-free U.S.A.

The Role of the Veterinarian in Laboratory Animal Medicine

*Berton F. Hill and Ronald T. Hopwood
National Academy of Sciences, Washington 25, D.C.*

A photographic exhibit delineating various laboratory animal diseases and the activities of laboratory animal veterinarians

Tularemia

*J. Ditchfield, E. B. Meads, and R. J. Julian
Ontario Veterinary College, Guelph, Ontario*

This exhibit is to report the discovery of tularemia in one area of Ontario and its relation to the human population.

Television in the Classroom

College of Veterinary Medicine, Michigan State University, East Lansing

Closed-circuit television as an instructional aid for teaching will be demonstrated, using television equipment and visual aids in a simulated classroom arrangement.

United States Department of Agriculture, Poultry Inspection, AMS-13

USDA, Poultry Division, AMS, Washington 25, D.C.

The exhibit consists of animated illustrations of air movements through the air-sac system of the chicken. Lighted transparencies depict the degree and the areas likely to be affected by the respiratory infections.

The Commercial Exhibits in Detroit

The Commercial Exhibits to be presented at the 98th Annual AVMA Convention is the largest and most diversified showing of veterinary products and technical developments yet displayed.

The exhibits will be located in Cobo Hall, and we urge all veterinarians to take full advantage of the many fine displays.

In addition, the American Veterinary Exhibitors Association will again sponsor prizes, which has become a feature of the commercial exhibits at AVMA conventions. Be sure to obtain your tickets at the time of registration.

Again—Visit and enjoy the Commercial Exhibits.

Abbott Laboratories

Booths 206 and 207

Abbott Laboratories' exhibit will include descriptive display panels on 2 new veterinary agents—Erythrocin® Injectable Veterinary and Dioleen® Cream and Suspension. Erythrocin is a highly effective antibiotic for treatment of many infectious diseases in both large and small animals. Dioleen is a topical agent for the treatment of nonspecific dermatoses, seborrheic dermatitis, allergic and contact dermatitis in large and small animals. Also on display will be informative panels on the Abbott line of fluids and electrolytes for use in large and small animals, and a panel on anesthetics—Nembutal®, Pentothal®, and Combuthal®.

Albert-Acan X-Ray Solutions, Inc.

Booth 223

Albert-Acan X-Ray Solutions, Inc., will exhibit the type of service it performs in conjunction with the sale of x-ray solutions. Our branch offices offer tank cleaning service at no additional cost to veterinarians in the Michigan, New York, New Jersey, Pennsylvania, and Ohio areas. In addition, the veterinarian has his choice of Ansco, Dupont, or Kodak chemicals. In the areas where service is not feasible, we will introduce our "Reduce Roentgen Radiation" concentrates that will enable the veterinarian to reduce radiation in his office, maintain present costs, and obtain the same diagnostic results. All our branch offices have a registered x-ray technician, AXRT, to assist you with your darkroom problems.

A. S. Aloe Company

Booth 22

Be certain to stop at the A. S. Aloe Company booth where we will have on display a representative grouping of our most complete line of veterinary instruments, equipment, and supplies. Our representatives will be pleased to discuss these and other items with you.

American Breeders Service

Booth 108

Members and guests of the American Veterinary Medical Association are invited to see and hear "how" and "why" breeding profitable dairy and beef cattle will mean more income for everyone. Our representatives will be available to answer your questions.

American Cyanamid Company-Veterinary Professional Service Department

Booths 204 and 205

Stop at the American Cyanamid Company booth for information about D.N.P. Disopenol for hookworms, Aristovet,[®] Triamcinolone, Vetamox,[®] Acetazolamide, and the many other products developed for the profession. The booth will be staffed by Mr. B. M. Zillman, Dr. L. M. Skamser, Dr. R. L. Burkhart, and other members of the professional service staff.

American Optical Company, Instrument Division

Booth 102

American Optical Company will exhibit and demonstrate the latest development in fluorescence, phase and interference microscopy, plus photomicrographic equipment for researchers. Illuminators and Hb-Meters will also be shown. A new line of moderately priced, Series Sixty Microscopes, well suited for service to the general practitioner and the veterinary medical school, will be exhibited for the first time. For routine lab work, the popular AO Microstar and related photomicrographic equipment will also be demonstrated.

American Sterilizer Company

Booths 208 and 209

The American Sterilizer exhibit will feature a complete line of portable pressure steam sterilizers especially suited to veterinary medicine and surgery. Included will be the highly-favored 613-R Dynaclave, the newly redesigned 8816 M and the cabinet model Aristocrat 1022.



The AVMA exhibit area at the Kansas City convention

Ames Company, Inc.

Booth 112

The many urine diagnostic specialty products of Ames Company will be on display. You are cordially invited to stop at the booth for a demonstration. The application of these tests to office procedure can save you time and money. Let Us Demonstrate!

Animal Cage Specialties Company

Booth 73

Animal Cage Specialties Company will display ACS stainless steel cages and Thrift-Line Model S-G, combination stainless steel and galvanized cages. ACS stainless steel cages are manufactured of 20-gauge type 304 stainless steel with solderless heliarc-welded seams. Both models have rounded inside edges and corners. Cages are welded into sturdy angle-iron frames, center-braced to eliminate dishing and drumming, with predrilled holes for easy assembly. Kemax cleaning gun also will be exhibited. Used with air compressor, the Kemax gun dispenses water and solutions, under pressure, for effective and labor-saving cleaning of cages, runs, and quarters.

Arista Surgical Company

Booth 96

We plan to exhibit a complete line of surgical instruments including hemostats, scissors, needle holders, and retractors both in government surplus and regular stocks. We will also have displayed specialties pertaining to the veterinarian. There will be a few new items of diagnostic equipment along with sutures, operating gowns, and oxygen supplies.

Armour Pharmaceutical Company

Booths 97 and 98

The exhibit will feature a select group of veterinary specialties to assist the veterinarian in maintaining a strong animal health program. Products displayed will consist of a number of "firsts" in the industry such as P.O.P., purified oxytocin principle; Antrate-H.C. hog cholera antibody concentrate; Armovac-A, Armovac, modified live virus different and distinct from other known procedures; NONemic, 75 mg. of elemental iron per cc.; Kymar oil, aqueous and ointment, anti-inflammatory enzyme; Erygen, modified live virus for erysipelas vaccinations. Also natural hormones such as F.S.H.-P; P.L.H.; and Adrenomones, corticotrophin products.

Arnold Laboratories

Booth 50

Arnold Laboratories will feature a complete line of large and small animal pharmaceutical products for discriminating practitioners who "Always Order Arnold."

Astoria Body Corporation

Booths 212, 213, 214, and 215

Astoria Body Corporation has developed for the veterinary profession the most complete, exclusively designed field service clinic on the market. Every thought has been given to the doctor who uses the equipment. We are not trying to make the cheapest unit, but we are confident that it is the most

economical for the purpose it was designed. We hope to see you in Detroit, and that you may find time to inspect the unit we are building for you.

Baldwin Laboratories, Inc.

Booth 47

Baldwin's biological products will be featured at the convention booth. SPF pigs and titration techniques in hog cholera vaccine production will be discussed by technical personnel. A new sensitivity test for antibiotics and sulfonamides that is simple and inexpensive will be demonstrated.

Best Foods Division of Corn Products Company

Booth 222

The Kasco dog food booth will feature Kasco natural dog meal and our new Kasco high protein professional dog food.

Bio Ramo Drug Company, Inc.

Booth 18

The Bio Ramo Drug Company, Inc., wishes to extend a cordial invitation to all veterinarians to visit their exhibit which this year will feature new products and a special section devoted to technical service. Samples of products will be given to veterinarians attending this 98th Annual AVMA Meeting.

Blair/Johnson, Inc.

Booth 57

On display at our booth will be Acutalyn, a newly isolated physiologic substance which has been used in the treatment of equine musculoskeletal conditions and canine uremia.

Burton Medic-Quipment Company

Booth 104

On exhibit at our convention booth will be a complete line of surgical and medical lights for the veterinarian's office, examining room, minor surgery, or treatment room. Featured will be the super power lights, Fresnel lights, Woods (ultraviolet black) lights, magnifying lamps, and microscopic illuminators. Up to 5,000-foot candles of light available for examination, treatment, or surgery; concentrated Fresnel spotlights for illuminating body cavities; and magnification with shadow-free illumination will be demonstrated.

Carnation Company

Booth 114

Friskies Pet Food Division, Carnation Company, will have a display of their complete line of pet foods. Representatives will be in attendance to explain the advantages of Friskies and accept requests for the various services offered to veterinarians.

Chicago Pharmacal Company

Booth 37

The Chicago Pharmacal booth will feature Urised in tablet and bolus forms. Urised has a dual action for all urinary tract infections of both small and large animals. It contains agents of proved efficacy in overcoming genito-urinary infections and painful muscle spasm. Other products will be Lobascon, an effective antitussive agent in tablet form for treating the dog with acute cough associated with bronchitis, laryngitis, distemper and other respiratory conditions; Canitone, a tablet combination of androgen and estrogen coupled with metabolic regulators for dogs of all ages; Merlenate, in solution, powder and ointment form; and Vermizine, a potent anthelmintic syrup for safe, complete eradication of roundworms and hookworms.

Childs Surgical Supply, Inc.

Booth 100

Childs Surgical Supply, Inc., is exhibiting the S.E.S.I. and Atlas unbreakable nylon syringe; compact, light to handle, and practically indestructible. They can be sterilized by autoclaving, boiling, or cold sterilization. Supplied in plain luer tip, luer-lock with nylon or metal nozzle, in varying sizes from 2 cc. to 20 cc.

Ciba Pharmaceutical Products Inc.

Booth 55

Exhibit describes Ciba's long-acting, anti-inflammatory, antipruritic, and glucogenic agent, Ultracortenol® (prednisolone trimethylacetate Ciba). A depot-type of injectable glucocorticoid in aqueous suspension, Ultracortenol is used to correct bovine ketosis and shock syndrome, and to treat non-specific dermatoses and inflammatory joint conditions in dogs.

Richard Conn, Inc.

Booth 106

The Richard Conn, Inc., exhibit, in charge of Dr. Francis N. Schlaegel (KSU '40), the firm's director of veterinary medicine, is devoted exclusively to Colsil No. 100, a new antidiarrheal for large and small animals. A naturally occurring, multiplemineral, colloidal silicate, fortified with a vitamin-mineral complex, Colsil No. 100 is described as a new approach to "total" scours therapy. In addition to treating the basic cause of the diarrhea, the product produces a rapid cessation of dehydration, arrests hemoconcentration, restores the natural processes of fibroplastic and tissue defect repair, restores calcium metabolism, and provides needed vitamins and minerals.

Coreco Research Corporation

Booth 23

The Coret Camera embodies the principle of electronic flash and constant automatic control of such factors as distance, aperture, field, and exposure. Now, for the first time, Coreco offers a completely automatic professional clinical camera purposely designed to achieve the ultimate in surface, intraloral, and intratubular photography. Because of the simplicity of operation, even an inexperienced doctor or nurse can achieve consistently perfect color transparencies.

Cornell University Press

Booth 110

This exhibit consists of books published in the field of veterinary medicine and associated sciences by Cornell University Press (also Comstock Publishing Associates), the Iowa State University Press, and other members of the Association of American University Presses. Books and records of particular interest to veterinarians in the general field of publishing are also displayed.

Corn States Laboratories, Inc.

Booths 115 and 116

On display will be Tempacine-H distemper-hepatitis vaccine, Tylocine antibiotic formulations and other new additions of interest to large and small animal practitioners. A featured portion of the display will depict the Lilly veterinary research program.

Cryogenic Engineering Company

Booth 83

Our booth will feature Eutelegensis (artificial breeding) equipment for the low temperature storage of semen; and Biostat, an apparatus to hold biological products in a static state. Suspended animation is practical for many cells at liquid nitrogen temperature, -320 F. Cryenco's Biostats are stainless steel, vacuum-insulated containers. Biostat Model 1000 has a storage capacity for approximately 4 liters of biological products, 650 cu. in., and 36 liters of liquid nitrogen. The dairy industry uses this unit to store 1,000 1.2-cc. ampules for 30 to 40 days before adding liquid nitrogen. Other models are also available.

Diamond Laboratories

Booths 34, 35, and 36

Diamond Laboratories of Des Moines, Iowa, will feature a 60-foot display, devoted to the story of standardization of biological products, Neoject 110 and Feraject 110. The standardization portion of the display will tell of the importance of Diamond "Certigard" Standard biological products, how they are standardized, and the more than 30 Diamond products that are standardized. The other portion of the display will feature Diamond's 2 Amylose Complexed injectable iron products: Feraject 110 for iron deficiency anemia in swine and Neoject 110 which is tailor-made for the prevention and treatment of iron deficiencies in sheep and cattle.

Difco Laboratories

Booth 74

Newly developed and standardized microbiologic specialties and laboratory reagents will be featured at the Difco exhibit. Research and development and technical service representatives will be present to discuss your special requirements.

Lester A. Dine Company

Booth 24

The Dine booth will feature the sensational Eastman Kodak Startech Camera, a new camera designed to simplify taking clinical close-up pictures with relatively inexpensive equipment. Perfect color or black and white pictures every time. In addition there are accessories for copying from a book or magazine and an easy method for making small transparencies from the large x-rays.

Dirck Manufacturing Company

Booth 65

The Dirck Manufacturing Company, the first in modern stainless steel cages, will display another first, an all stainless steel animal cage with no iron framing. These new ESL units are in the economy class and built in 16 sizes. Other items on display will include our 2 standard types of stainless steel SL and DS cages, galvanized cages, and our dual animal drying cage and drying racks.

Doho Chemical Corporation

Booth 66

Doho Chemical Corporation and its subsidiary, Mallon Chemical Corporation, are pleased to exhibit Auralgan, for relief of pain and itching in otorrhea, canker and ear mites; Otosmosan, for suppurating ears, fungous conditions, and other forms of aural dermatomycosis; Rhinalgan, the pleasant-tasting nasal decongestant which shrinks the mucous membrane without any systemic or circulatory effect; Larylzan, a soothing throat spray for infectious and noninfectious sore throat involvements; Rectalgan, the liquid topical anesthesia for immediate symptomatic relief of pain and itching in hemorrhoids, and for many other uses pre- and postoperatively; Dermoplast, in an aerosol freon propellant spray for fast relief of surface pain, itching, burns, and abrasions.

Eaton Laboratories

Booths 216 and 217

On display will be a new, effective treatment of naturally occurring otitis externa in small animals with Furacin-Micofur ear solution with anesthetic, veterinary—is easy to apply, penetrates and disperses readily in the ear canal, and is nonirritating to aural membranes. It is effective against most of the common pathogenic bacteria found in the infected ear canal. This is the first product for the veterinary profession that is a combination of 2 nitrofurans, Furacin® (brand of nitrofurazone) and Micofur® (brand of nifuroxime), and it is the first veterinary application of the newer drug, Micofur.

Eisele & Company

Booth 41

Eisele & Company will exhibit their regular line of hypodermic syringes, both the regular and interchangeable types, hypodermic needles, clinical thermometers, elastic bandages, specialty glass ware, and other related items.

Encyclopaedia Britannica

Booth 43

Encyclopaedia Britannica, founded in Scotland in 1768, has long been known as the reference standard of the world. Between its founding and 1929, it went through 14 editions, the last 3 under American ownership. Beginning in 1933, the annual revision system was instituted, and new editions are brought out each year. The 1961 *Encyclopaedia Britannica* is in 24 volumes, containing nearly 40,000,000 words, of which more than 8,000,000 were revised this year. Contributors to the set include President Kennedy, Herbert Hoover, Albert Einstein, Adlai Stevenson, and Sigmund Freud. Publisher of *Encyclopaedia Britannica* is William Benton; Harry S. Ashmore, Pulitzer Prize winner, is editor-in-chief.

Ford Kennel Equipment Inc.

Booth 211

A seamless, cornerless, stainless steel animal cage will be displayed. This cage is the finest product we have ever offered the veterinarian. It is a reasonably priced cage for the job it does. The veterinarian should realize the stainless steel cage is as valuable in his kennel hospital, being clean and germ-free, as is his operating table. Fencing products will also be shown as well as our zinc cages.

Fort Dodge Laboratories

Booths 9 and 10

Featuring the new, concentrated, standardized Fort Dodge "Biotized" bacterins: Porsibac, Ovibac, Fortibac, and Bovibac; Promazine Granules, tranquilizer for horses; Distovax-H; Halsan, nonexplosive, nonflammable precision anesthetic; other biological and pharmaceutical products for large and small animals.

Fromm Laboratories, Inc.

Booth 48

Qualified technical service will be available to the veterinarian to answer his questions and acquaint him with the varied line of biological products produced by Fromm Laboratories.

Gaines Dog Foods

Booth 118

Gaines will distribute descriptive material outlining details and veterinary benefits of the Gaines Professional Feeder Rebate Plan.

Geigy Agricultural Chemicals Division of Geigy Chemical Corporation

Booth 38

Geigy Dipofene is a superior dog dip and kennel spray for the control of resistant and nonresistant brown dog ticks (*Rhipicephalus sanguineus*) and fleas (*Ctenocephalides canis*). A 0.25% concentration of the toxicant provides immediate control plus residual control of up to 4 weeks' duration on most dogs. A 0.5% concentration used as a wash or spray in kennels and applied to cages and runs helps prevent reinfestations of ticks and fleas and effectively controls the common housefly. Dipofene is nontoxic to man and animals when used as directed at recommended levels.

Goshen Laboratories, Inc.

Booth 15

Goshen displays their own products—Foot Rot Ointment, Skin Ease, Derma Calm; and other manufacturers' products—Heliogen (Diatomaceous Iodine), Nilodor, Timsen, Pharmatran, Panafil, Y-Mycin, and others. Also, autoclavable urethral and ureteral catheters, endotracheal tubes, surgical repair mesh, Boyd's Cattle Lifter Sling, Cadillac Hoist Winch, dependable dog dryer, and other items.

Hamilton Pharmacal Company

Booth 52

In addition to displaying their complete line of mastitis products which have been well known in the profession for years as being available only

to the graduate veterinarian, the Hamilton Pharmacal Company will present their new fortified Calf Scour boluses to the large animal practitioner. For the small animal practices the Company will introduce and display their new high-potency vitamin formulas for dogs and cats. A graduate veterinarian will be present at the booth for discussion throughout the entire convention.

Harilian Pharmaceuticals

Booth 95

Prednameen is a new product that relieves itching within 72 hours. It is especially effective in treating pruritus and allergic and nonspecific dermatitis in dogs and cats. Prednameen is a combination of prednisone, antihistamine, unsaturated fatty acids, and vitamins. It is emulsified to insure rapid and complete absorption of all the ingredients. Emulsification also increases the effectiveness of prednisone.

Haver Lockhart Laboratories

Booths 28, 29, and 30

The Haver Lockhart exhibit features latest developments in biological and pharmaceutical products, instruments, and diagnostic aids for the veterinary profession.

Hill Packing Company

Booth 33

This exhibit will feature the full line of special dietary animal foods carrying the Prescription Diet® label. These products are formulated for use as dietary aids in the clinical management of certain canine and feline disease entities and stress conditions. Hill Packing Company veterinarians will staff the exhibit and will be prepared to discuss all inquiries regarding the clinical application of these products for their specific indications.

Iowa State and Cornell University Presses

Booth 56

We will exhibit a strong line of professional books from Iowa State and Cornell University Presses. You'll particularly want to see the new *Outline of Veterinary Clinical Pathology* by Benjamin, the 1961 revision of Benbrook's *Veterinary Clinical Parasitology*, the new *Principles of Veterinary Pathology* by Runnells, Monlux, and Monlux, the 1961 revision of *Veterinary Bacteriology and Virology* by Merchant and Packer, and the newly revised *Infectious Diseases of Domestic Animals* by Hagan and Bruner. Orders taken at the booth for professional copies and for teachers' copies.

Dr. S. Jackson, Import-Export

Booth 109

This exhibit will feature: Coecolysin, the world's only veterinary preparation containing peristaltic hormone; Othromin, bactericidal, colloidal pole reversing, antiallergic, and *gamma* globulin reversing; electromagnetic metal detector, brand new model with both optical and acoustical indications; self-expanding teat dilator, not a teat plug but a surgical instrument; Vetafil, the new synthetic surgical suture; Perlon OB Ropes, superior to chains; and new rust-proof OB wire and OB wire saw handles.

Jensen-Salsbery Laboratories, Inc.

Booths 11 and 12

The Jen-Sal exhibit will feature 2 of the newer immunizing agents—Cytogen, tissue culture distemper vaccine, and Staphoid A-B, the broad-spectrum

staphylococci bacterin toxoid—plus several specialty pharmaceutical products. In addition the exhibit will include several of the newer and more popular hospital equipment and surgical supply items recently added to the Jen-Sal line.

Kirschner Manufacturing Company

Booth 78

Kirschner Manufacturing Company invites all those attending the convention to visit our exhibit. We will be showing the latest in glass plastic animal cages, fracture equipment, and surgical instruments.

Knoll Pharmaceutical Company

Booth 113

Knoll Pharmaceutical Company extends to you a cordial invitation to visit our booth. Stop in for the latest information and clinical data on Metrazol, Octin, Quadrial, Sulfoctan, Theocalcin and other Knoll veterinary drugs.

Stop in just for a relaxed visit so we can get to know each other better.

Lea & Febiger

Booth 84

Lea & Febiger cordially invites you to examine these 1961 and other recent publications: Schalm—*Veterinary Hematology*; Carlson—*Veterinary Radiology*; Noble and Noble—*Parasitology (the Biology of Animal Parasites)*; Smith and Jones—*Veterinary Pathology*; Whitlock—*Diagnosis of Veterinary Parasitisms*; McGrath—*Neurologic Examination of the Dog*; Miller—*Meat Hygiene*; Card—*Poultry Production*; Barger, Card, and Pomeroy—*Diseases and Parasites of Poultry*; and other books of interest to veterinarians.

Arthur E. Look, Inc.

Booth 17

This year marks our silver anniversary. For more than 25 years we have been supplying the veterinary profession with quality products. We invite all in attendance to visit our exhibit where Victor hypodermic needles will be featured. Also on display will be our very popular line of Vet-Pak sterile sutures. These sutures are manufactured from high-quality surgical gut.

The Lukens Company

Booth 107

A complete and comprehensive line of surgical sutures will be exhibited. The revolutionary Lukens' exclusive Iodized Catgut will be shown. Other items such as dacron, silk, nylon, and cotton sutures will be included. Latest design of suture packaging and swaged needles will be on display.

S. E. Massengill Company

Booths 53 and 54

Best wishes to the AVMA for a successful 1961 session. Massengill representatives will be pleased to discuss any products which interest you. Exhibited will be Pet-Tabs and Pet-Tabs, Jr., tasty small animal vitamins; Daribiotic, the superior antibiotic product; and Hemostop, the unique, systemic hemostat.

Merck and Company

Booths 119 and 120

For the AVMA convention, Merck will feature Diuril Boluses, the new oral diuretic for the relief of mammary edema in cattle. Diuril is also indicated in other edematous conditions arising from a fluid and electrolyte retention. Sulfabrom, a long-acting sulfonamide for cattle use, will also be featured.

Merck & Company, Inc.

Booth 16

Merck & Co., Inc. is sponsoring an exhibit featuring the 2nd edition of the *Merck Veterinary Manual*. Just off the press, this new edition comprises a total of 422 chapters on the diagnosis and treatment of animal diseases in 20 main sections, each thumb-indexed, each covering a specific field of practice. Compiled under the editorial direction of the Merck research division, the new edition, incorporating many new subjects, is again being published to serve veterinary and allied professions. More than 250 authorities in various fields of veterinary science served as authors or consultants in the preparation of this 1,600-page handbook.

Modern Veterinary Practice

Booth 225

On exhibit will be copies of *Modern Veterinary Practice* magazine, the Modern Veterinary Practice Reference and Data Service, and the veterinary scientific books published by American Veterinary Publications. In attendance will be; Harry H. Costello, W. Glenn Costello, Dr. Le Roy Wenzel, Dr. J. F. Smithcors, and other editors and writers for this firm.

Monroe Specialty Company

Booth 101

Complete line of personalized dog and cat identification tags will be displayed. Finest finished chrome-plated tags made. All tags guaranteed. Liberal profit. Free counter display. Each tag made and mailed the same day as order is received. Pet's name, owner's name, address, and phone number imprinted on tags.

Motorola Communications & Electronics, Inc.

Booth 117

Motorola will, as usual, display the most modern 2-way radio equipment for the veterinarian. The new Motorola "Motrac" 2-way radio with completely transistorized power supply and completely transistorized receiver will be on display to veterinarians for the first time at an AVMA convention. In addition to a substantial decrease in the battery drain because of the transistors used in this set, there is also a built-in reliability that cannot be contested.

Julius Nager, Importer of Surgical Instruments

Booth 92

Our booth will feature all types of surgical instruments of first quality (imported). *Special:* electric drills with quick, detachable handpiece and foot-control with newest kind of electrolyzed burrs for surgery and dental-work, i.e. removing of tartar and splitting teeth. Our prices are highly competitive.

National Cylinder Gas Division of Chemetron Corporation

Booths 61 and 62

The NCG booth features a complete line of oxygen therapy, resuscitation, and anesthesia apparatus for small animals, including A.V.R. (anesthetizer-vaporizer-resuscitator), which automatically maintains a constant level of anesthesia administered by the surgeon himself; the handy resuscitator, an invaluable instrument for successful treatment of respiratory and cardiac failure or surgical shock; oxygen therapy panel, which converts cage in clinic to oxygen tent quickly and efficiently; veling heart monitor, which audibly warns of cardiac emergencies; NCG deodorant; outlets for piped oxygen and vacuum; plus many other new, helpful items.

The National Laboratories Corporation

Booth 27

The National Laboratories Corporation exhibit will feature National pharmaceutical products including several new pharmaceutical items, Affiliated Laboratories biological products, and National anti-hog cholera serum.

Nicholson Manufacturing, Inc.

Booth 210

Nicholson Manufacturing, Inc., is pleased to welcome veterinarians to the Annual AVMA Meeting. Our display will consist of our firing iron and dental equipment for horses, our Trans-Jector (electronic ejaculator for bulls and rams), samples of our branding irons, the Frank fetal extractor, veterinary tattooing equipment, and other items.

Norden Laboratories, Inc.

Booths 31 and 32

Norden Laboratories, Inc., cordially invites you to visit Booths 31 and 32 where veterinary pharmaceutical and biological products resulting from Norden and Smith Kline & French research will be featured. Norden representatives will be pleased to present up-to-date information on all products bearing the Viking Ship trademark.

Osborn Laboratories, Inc.

Booth 226

Osborn Laboratories cordially invites you to visit our newly designed display where our courteous representatives will be available to present and discuss a few of our select products for the profession. These products include synergistically balanced antibiotic formulations, rumen metabolic regulators, and other specific adjuncts to your armamentarium. Remember you haven't really been to the convention unless you visit Osborn.

Parke, Davis & Company

Booths 71 and 72

Parke, Davis & Company welcomes all veterinarians to Detroit and invites them to visit our booth. Let us help you with visitors' information and suggestions to make your stay in Detroit more enjoyable. Representatives will also be available to discuss Chloromycetin products, Surital Sodium, and many of our other specialties.

Chas. Pfizer & Co., Inc.

Booths 202 and 203

The Department of Veterinary Medicine of Chas. Pfizer & Co., Inc., will exhibit their latest convention unit. The display has been specifically arranged for your convenience and to give you the maximum in quick service and product information. To make your visit worthwhile, technically trained personnel will be on hand to inform you of the latest developments in Pfizer Research. Liquamycin Injectable, the practical solution to the veterinary anti-infection problems, will be the principal product displayed at the booth. The complete product line will also be on display.

Philadelphia Laboratories, Inc.

Booth 69

Philadelphia Laboratories, Inc. (formerly Philadelphia Ampoule Laboratories) will exhibit a broad line of pharmaceutical products including injectables and oral products. Featured specialties will be Vet-tone, Sulfagel, Prednicaine, and several antibiotic items including mastitis ointments and a new anti-inflammatory eardrop.

Pitman-Moore Company—Allied Laboratories Divisions of the Dow Chemical Company

Booths 7 and 8

Pitman-Moore Company—Allied Laboratories, Divisions of the Dow Chemical Company, invite all those attending the American Veterinary Medical Association meeting to visit booths 7 and 8, featuring pharmaceutical and biological products of interest to the profession. Among the products on display will be Ectoral, Globulon, and Tissuvax DH.

Professional Veterinary Service, Inc.

Booth 227

On display will be intermittent positive pressure respirators for small animals. Also "Oxidor" oxygen tents and all types of endotracheal catheters and oxygen regulators, nebulizers, and humidifiers. Of particular interest will be an improved, closed system "Fluothane" anesthesia unit for small animals. Oxygen equipment for large animals will be shown. We are looking forward to greeting the AVMA next August in our home town, Miami, Fla.

The Quaker Oats Company—Pet Foods Division

Booth 200

Product Display of the following pet foods will be featured: Ken-L-Ration—"Inspected and Certified by U.S. Department of Agriculture as a normal maintenance dog food" Ken-L-Biskit—kibbled (small broken pieces), "The Dog Food of Champions"; Ken-L-Meat—new Red Meat Meal that shouts "meat" to your dog! Ken-L-Treats—6 individual shapes, flavors, and colors; meat, milk, egg, fish, cheese, and bone. "Snack time is Treat Time." Ken-L-Burger—a high meat protein, vitamin and mineral supplement. "U.S. Government Inspected." Puss 'n Boots—contains whole fish (including protein-rich fillets). "A complete balanced-diet food for cats."

Ralston Purina Company

Booth 79

The Ralston Purina exhibit will feature the Purina Dog Care Center and the research behind Purina Dog Chow. Visitors to the AVMA convention are invited to visit the booth and talk with the Purina representatives.

Randall Faichney Corporation

Booth 77

The Randall Faichney Corporation will present their well-known line of Viking, Dura Viking, and Imperial Viking Syringes, as well as needles and pertinent specialties. Featured will be automatic delivery syringes and valves, with emphasis on accuracy and speed. The facilities of Ranfac's engineering department are always available to the profession for the betterment and improvement of instrumentation therapeutics.

Reading Body Works, Inc.

Booths 13 and 14

Reading will feature its advanced design "Vetro" body, specifically designed for veterinary field work, mounts on any 1/2- or 3/4-ton truck chassis. Built-in porcelain enamel sink with running hot water from 20-gallon tank. Refrigerator compartment for perishables. Multiple side compartments have adjustable, removable shelves and bin dividers, slide-out trays. Compartments are individually heated, lighted, insulated, dustproof and moistureproof with weatherstripped doors. Horizontal doors serve as field tables when open. Large lighted rear storage area is fully enclosed, with 2 pull-out drawers that add 10 sq. ft. of shelf space. Unitized welded construction. Rugged safety-step rear bumper. Complete under-structure undercoated standard at no extra cost.

Red Heart Division, John Morrell & Co.

Booths 93 and 94

The Red Heart booth will feature Red Heart dog and cat food, Red Heart mink food, and Foxbilt animal feeds. Dr. W. L. Brown, Assistant Director of Research, will be on hand to answer any questions about the nutritional properties of Red Heart dog and cat food, as well as mink food; Dr. L. J. Hanson of Foxbilt animal feeds will be available for any discussion about that product. Complete literature describing all the products exhibited will be on hand for dissemination to interested parties.

Research Laboratories, Inc.

Booths 19, 20, and 21

"Better Products Through Research" is evident when you visit the Research Laboratories, Inc., exhibit. In attendance will be personnel from the research, production, and sales staff to familiarize you with outstanding products. A new mastitis treatment, a new concentrated distemper serum, and many other new products that have been developed to fit the specific problems of the veterinarian in today's practice will be on display.

Sani-Cage Manufacturing Company

Booth 111

Sani-Cage Manufacturing Company of Chicago will display their line of Stainless Steel and Galvaneal K-9 "Sani-Cages". Also on display will be the new "Sani-Fence", the finest fencing available that is designed for the veterinarian. The Sani-Cage Company is in a position to furnish you a complete service, including x-ray equipment, reception-room furniture, operating tables and lights. Also incinerators, driers, sterilizing equipment, instruments, etc. To those men who wish to avail themselves of it, Sani-Cage offers a plan to finance the installation of equipment. Come in and talk with us, in attendance will be A. C. Morgan, Larry Kahme, Ray Crouch, and Ernie Stoltz.

W. B. Saunders Company

Booth 60

Along with Ellis P. Leonard's *Orthopedic Surgery of the Dog and Cat*, Saunders will be displaying a full line of medical, surgical, and allied books, many having direct application to every-day veterinary practice.

Schering Corporation

Booths 1, 2, 3, 4, 5, and 6

You are cordially invited to visit the Schering exhibit and have your souvenir photograph taken with the new 10-second polaroid camera.

Schroer Manufacturing Company

Booth 99

"Shor-Line" invites all those attending the AVMA Convention to visit the display of instruments, kennels, and operating tables. Of particular interest will be the new operating table with stainless top and base; and the versatile animal cages, with new and exclusive features, which are easily adaptable to individual or small hospital use.

Shank's Machine Company, Inc.

Booth 81

There will be on display the Medi-Master Carrier Cabinets, made from stainless steel and designed to install in automobile, station wagon, or panel truck to carry supplies, drugs, or instruments. We will also have the M & M cattle sling, power-pull (hoist), stainless steel carrying case, and the Douglas Tilt-Master large animal table for clinical use at the convention.

A. O. Smith

Booths 67 and 68

A. O. Smith Harvestore Products, Inc., exhibit will feature full-scale ranger tender care unit and portable livestock chute. Also shown will be a complete ranger line of hog feeding and watering equipment, farrowing equipment, manure disposal systems, and scales.

Snyder Manufacturing Company

Booth 42

Snyder Manufacturing Co. will exhibit items from their line of Formica animal kennels, dryers, and oxygen equipment. In addition, Formica examination and grooming tables designed for the profession will be introduced.

E. R. Squibb & Sons

Booths 218 and 219

You are cordially invited to visit the exhibit of E. R. Squibb & Sons. Seven important Squibb veterinary products are featured: Panolog®, a comprehensive dermatologic ointment; Vetalog®, a new parenteral steroid; Vetame®, an improved phenothiazine; Neothion®, an effective mastitis ointment; Rubrafer®, a subcutaneous antianemia preparation for suckling pigs; and Vionate® for pets and Vionate®-L, balanced vitamin-mineral supplements. Squibb representatives will be glad to discuss these and any other Squibb veterinary products in which you are interested.

Suburban Surgical Supply

Booth 103

Our display will feature stainless steel cages for the veterinary and scientific laboratory research animal facilities.

Swift & Company

Booth 26

On display will be new "Lickin' Good" canned Pard and dry Pard Crunchers. Visit the Pard exhibit and see these 2 new exciting dog foods.

Twin A. A. Cutlery Company

Booth 44

Twin A. A. Cutlery Company distributes all-metal TwinAlloy necropsy knives. The blades are rustproof and acid-resistant, with handles of spun aluminum. Both blade and handle will stand sterilization. We distribute over 350 other useful cutlery items, made of best quality steel and tooled by skilled craftsmen.

Veterinary Economics Magazine

Booth 58

Economics information center. Staff of the veterinarian's business magazine will be on hand to discuss economic problems confronting veterinarians.

Veterinary Medicine Publishing Co.

Booth 70

Veterinary Medicine Publishing Co. will display its varied new publishing services to the profession. You are invited to drop in and meet the editorial staff. Facilities will be available to record your comments, suggestions, and criticisms.

Vet-Kem Laboratories

Booth 91

More and more, parasites are developing a high degree of resistance to insecticides. Constant research is the only way to pinpoint these problems and solve them as they occur. Vet-Kem Laboratories is engaged in only one endeavor—to pinpoint the problems of resistance on small animals and large animals, and to constantly screen new insecticides and methods of control, seeking effective materials, safety to animals and man, assurance of no residues in meat and milk, and reasonable cost. From this research comes tomorrow's product today. With Vet-Kem in your hospital, you will be out in front scientifically and equipped to whip the resistant insect problem.

Vitamineral Products Co.

Booth 51

Since 1914, the Vitamineral Products Co. has been furnishing exclusively to the veterinary profession high quality calcium, phosphorus, vitamins, trace mineral supplements—these products are now used by more than 8,500 graduate veterinarians. Stop at our booth for copy of the latest edition (33rd) of V.P.C. feed formula book.

The Warren-Teed Products Company

Booth 25

An expanding service to graduate licensed veterinarians keynotes Warren-Teed's specialty product offerings to you. "Thera-Tergent," a completely new multipurpose therapeutic shampoo; "Tympacaine," a uniquely-powerful otic anti-infective; and "Klor® Stainless," Warren-Teed's original contribution to the veterinary profession, will be featured.

The Williams & Wilkins Company

Booth 221

Among other books which are on display for your examination are: *Veterinary Medicine*—Blood & Henderson; the *Veterinary Annual* (1960)—Pool; *Radiography for the Veterinary Surgeon*—Smith; *Female of the Species*—Smythe; and *Reproduction in the Dog*—Haroop. Also see the new Golden Jubilee edition of *Stedman's Medical Dictionary* by 22 consulting editors and 34 aides. A special effort has been made to include many more veterinary terms than in the usual medical dictionary, and the veterinary section was prepared under the editorial supervision of William A. Hagan, director, National Animal Disease Laboratory, U. S. Department of Agriculture.

Wilson & Company, Inc.

Booth 59

Giant photographic reproductions of our Ideal Dog Food advertisements, featuring the U. S. Government Inspection of Ideal, will be the background for a product display of Ideal and 4-Paw Tasty Mix dog foods.

Winthrop Laboratories

Booth 220

Winthrop Laboratories will feature Lothiol, a new medicated shampoo for dogs; Milvonique for the treatment of mange in dogs, and Pluraxin Veterinary Syrup, a vitamin food supplement for small animals. Neoprontosil, the original injectable sulfonamide; Nemural, Phiso hex Roccal, Omnadin, and our recently-introduced Zephiran tinted tincture aerosol spray will be on display.

W-W Manufacturing Company

Booth 49

The 1961 exhibit will include the New W-W portable cattle chute. The new model has been redesigned specifically for veterinary use. The simplicity and ease in operating a W-W chute makes it one of the most popular names in cattle handling equipment. Stop in and see us at the 1961 convention.

Wyeth Laboratories

Booth 224

Wyeth will feature Sparine® Hydrochloride (promazine hydrochloride, Wyeth) to reduce anxiety or unruliness during examinations and minimize effort, time, and risk during animal handling without impairment of consciousness. Available in tablet and injectable forms, Sparine potentiates barbiturate, narcotic, and hypnotic effects and reduces anesthesia requirements in large and small animals. Also featured will be Streptomagma® Tablets (dihydrostreptomycin sulfate with pectin, kaolin, and alumina, Wyeth), effective in treatment of various intestinal disturbances by coating

irritated intestinal linings with a protective film and adsorbing certain bacteria and toxins. Streptomycin is especially indicated in intestinal inflammation, diarrhea, bacterial food poisoning, and intestinal parasitism.

Late Arrivals

Hollister Incorporated

Booth 40

Hollister Incorporated will show Animal Care Ident-A-Band for identification of animals in laboratories, hospitals, and kennels—prevents possible mixups in treatment and handling. They are made of a slim strip of soft vinyl covering a tough core of duPont Mylar, which has a tensile strength equal to steel that resists breaking or stretching by the most active animal. Band seals on permanently with a small stainless steel clip. Identification information is sealed inside the band where it is protected from water and wear yet can be clearly read at all times.

Miller Surgical Company

Booth 201

See the Miller electro-scalpel and radiotherm with snares, suction-coagulation attachments, and other special accessories. These cutting, coagulating, and desiccating units, with or without spark gap, are calibrated to do the most delicate work as well as light major surgery. Also on display will be illuminated otoscopes, eyespud with magnet, ophthalmoscope, transilluminating lamps, bronchoscopes, gastroscopes, grasping forceps, vaginal-rectal speculum, plastic utility lamp, reflecting headlight, battery handle, reostat, and new variable wall rayostat with coiled or straight cords.

North American Philips Co., Inc.

Booth 82

The Norelco exhibit features the versatile Super Practix X-Ray unit which is ideally suited to the needs of the small animal hospital. Combining a high output of 85 kv at 20ma with its inherent fine detail possibility, the Super Practix permits the widest range of radiographic techniques, both as a mobile or portable x-ray source. The Super Practix outfit consists of the tubehead, for which a fitted carrying case is available, the control desk, which includes line voltage compensator with separate hand timer and the lightweight, mobile tubestand. A complete range of cones which mount by means of a snap-action holder, are available. Representative radiographs made with the Super Practix will be shown.

The Upjohn Company

Booths 228, 229, 230, and 231

The Upjohn Company cordially invites all those attending the AVMA Convention to visit their exhibit. Their representatives will welcome the opportunity to discuss the products available to the veterinary profession.

The Yorke Group, Division of the Reuben H. Donnelley Corporation

Booth 30

The new, completely rewritten 9th edition of *The Veterinary Drug Encyclopedia and Therapeutic Index* will be on display. This edition has been enlarged to over twice the size of the original edition and contains numerous improvements and changes, including a feed additives section. We invite your inspection and suggestions.

Effect of Age on Resistance and Retention of Titer in Cattle Vaccinated with Strain 19 *Brucella abortus* Vaccine

N. B. King, D.V.M., Ph.D., and Norma A. Frank, M.S.

MUCH PROGRESS has been made in recent years toward the control and eradication of bovine brucellosis. Undoubtedly, the use of calfhood vaccination with strain 19 vaccine has been an important part of this program. Nevertheless, as the incidence of bovine brucellosis continues to decline, the vaccination program may present a formidable barrier to total eradication because of resulting persistent blood reactions which interfere with early detection and disposal of infected animals.

Reactor agglutinin titers following administration of strain 19 vaccine, particularly in older calves and adults, may persist for many months. This is unfortunate since such titers can not be distinguished from those that result after virulent infection. In general, the older the animal at the time of vaccination, the longer the agglutinin titer tends to persist. The belief held by many, that the older the animal at the time of vaccination, the greater the level of resistance, may have stemmed from early work^{5,6} in which effectiveness of vaccine was reported to increase with the age of animals up to sexual maturity. However, recent controlled laboratory studies indicated that immunity induced by strain 19 vaccine in 4-month-old calves compared favorably with that in 8-month-old calves.⁴ This work and recent field observations tend to disprove the findings of earlier work.

The consensus resulting from experience in the use of strain 19 vaccine is that it

produces satisfactory serviceable resistance but not absolute immunity to *Brucella abortus* infection in cattle. Obviously, if the vaccine can be used in a manner which would greatly reduce the persistence of blood agglutinin titers but still afford a satisfactory plane of resistance, it would be a valuable aid to the brucellosis eradication and control program.

Materials and Methods

Blood Serum Agglutination Tests.—The standard tube method was used throughout the experiment for titer determinations. Serum in twofold dilutions ranging from 1:25 to 1:12,800 and a standardized ARS antigen were used. The tests were read following incubation at 37 C. for 48 hours.

The Vaccine.—The strain 19 vaccine was the lyophilized-type purchased from a commercial veterinary supply company. Within 30 minutes after reconstitution, the vaccine was injected subcutaneously in the area immediately posterior to the scapula.

Challenge of Immunity.—Resistance of vaccinated and control calves was challenged by conjunctival sac instillation of virulent *Br. abortus* (ARS, USDA, 2308) organisms in a manner similar to that used previously.^{1-3,7,8} The concentration of viable cells used for the infecting doses was obtained by suitable dilution of a basic suspension of the culture standardized to contain 1 billion viable cells per milliliter. The final cell concentration was adjusted so that 0.1 ml. contained the entire challenge dose. One half of the dose (0.05 ml.) was instilled into the conjunctival sac of each eye. The cattle were allotted to 2 groups on the basis of time of conception.

The immunity of each group was challenged during the middle of gestation. By actual count the 1st group was given a challenge dose of 715,000 organisms, and the 2nd was given approximately 900,000 organisms.

From the Department of Veterinary Science, Ohio Agricultural Experiment Station, Wooster.

The assistance of Mr. Homer Gall, Dr. Carl Fosnaugh, Mr. R. M. Marshall, and Mr. R. G. Swanger, Department of Welfare and Mental Hygiene, Columbus and Mansfield, Ohio, is gratefully acknowledged.

Attempted recovery of *Br. abortus* after challenge of immunity was limited to the inoculation of tryptose-agar plates with milk, stomach contents of the aborted fetus, and vaginal swabs taken from dams which had calved recently.

Duplicate plates were inoculated with each material. One of each set of plates was incubated under increased carbon dioxide tension. After a minimum of 4 days of incubation at 37 C., colonies with *Brucella* characteristics were selected for further identification. Phenolized saline suspension of the selected cultural growth was used as the antigen in agglutination tests with known positive and negative *Br. abortus* serum samples.

Animals.—Twenty-one Holstein-Friesian heifer calves obtained from a brucellosis-free herd were used in this test.

During the 18-month interval between the time of selection and the experimental exposure, they were maintained in pasture or winter quarters as a single herd under conditions intended to avoid opportunity for *Brucella* exposure.

The heifers were considered as 4 groups for the purpose of the experiment. The calves in group A (6 head) were vaccinated when 9 months old, group B (6 head), when 6 months old, group C (6 head), when 3 months old; those in group D (3 head) served as unvaccinated controls. The control calves were similar in age to the vaccinated calves and were approximately 2 years old at the time of challenge. All calves had negative agglutinin titers at 1:25 at the time of vaccination with the exception of 3 in group A with titers of I^* 1:25.

Breeding of heifers was started when they were 14 to 20 months old. Heifers were bred by artificial insemination. Pregnancy was established in 4 of group A, 6 in group B, 4 in group C, and 2 in group D.

*Incomplete agglutination.

Just prior to challenge with *Brucella* organisms, the heifers were placed in individual pens where they remained throughout the remainder of the experiment.

Blood agglutinin titers were determined at weekly intervals for at least one month following vaccination and at monthly intervals thereafter until time of challenge. Weekly determinations were made after challenge for the remainder of the experiment.

Results

Mean blood agglutinin titers of the heifers obtained in tests made at intervals from time of vaccination until the time of challenge are given (Fig. 1). All heifers had negative titers at 1:25 dilution at the time of vaccination except the 3 in group A (vaccinated when 9 months old), already mentioned.

Group A calves had a maximum mean titer of 1:4,000 approximately 2 weeks after vaccination and, although the titer receded slowly, a "suspicious" average titer of 1:200 was maintained for at least 15 months after vaccination.

Group B calves (vaccinated when 6 months old) attained a maximum mean titer of 1:2,600 two weeks after vaccination and returned to a negative status within 6 months after vaccination. The mean titer of this group rose to a suspicious level on the 8th and 9th months post-vaccination, then receded to negative, and remained negative until immunity was challenged.

Fig. 1—Mean blood agglutination titers of calves vaccinated at different ages with strain 19 vaccine.

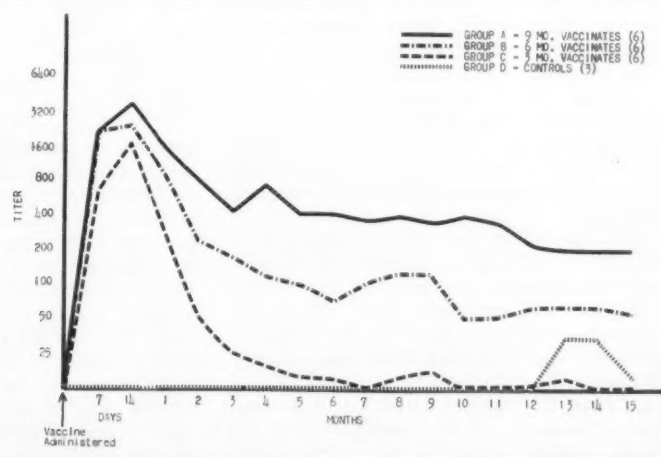


TABLE 1—Results from Challenge of Immunity of Pregnant Heifers with *Brucella abortus*

Group and No.	Calving and days in gestation	Blood aggl. at calving	Br. abortus recoveries cultural method only			Cattle	Resistance
			Fetus sto. contents	Vag. swab	Colo-strum		
Group A							
Vac. at 9 mo.	.. .....	.....	.....	.....	.....	2/4*	50.0%
480	N — 279	I 1:100	NC	—	—	.....	.....
483	N — 278	I 1:50	NC	—	+	.....	.....
491	A — 236	I 1:3,200	—	+	+	.....	.....
493	N — 281	I 1:50	NC	—	—	.....	.....
Group B							
Vac. at 6 mo.	.. .....	.....	.....	.....	.....	4/6	66.3%
495	A — 170	I 1:800	+	+	+	.....	.....
496	N — 280	I 1:200	NC	—	—	.....	.....
498	N — 278	I 1:50	NC	—	—	.....	.....
500	N — 285	I 1:100	NC	—	—	.....	.....
505	A — 201	I 1:3,200	+	+	+	.....	.....
506	N — 278	I 1:25	NC	—	—	.....	.....
Group C							
Vac. at 3 mo.	.. .....	.....	.....	.....	.....	3/4	75.0%
509	N — 277	I 1:25	NC	—	—	.....	.....
515	N — 277	I 1:50	NC	—	+	.....	.....
521	N — 282	I 1:25	NC	—	—	.....	.....
525	N — 278	I 1:50	NC	—	—	.....	.....
Group D							
Controls	.. .....	.....	.....	.....	.....	2/2	0%
494	A — 169	I 1:400	+	+	+	.....	.....
508	A — 213	I 1:12,800	+	+	+	.....	.....
518	(Not pregnant)					.....	.....

N = normal; A = aborted, calf dead; NC = Not cultured, *Br. abortus* not isolated; + = *Br. abortus* isolated; I = incomplete agglutination.

*Number resistant cattle (numerator), total cattle in group (denominator).

Group C calves (vaccinated when 3 months old) had a mean maximum titer of 1:1,700 two weeks after vaccination, returned to a negative status 2 months after vaccination, and remained negative throughout the experiment.

Group D calves (unvaccinated controls) remained negative until their immunity was challenged. One of the unvaccinated controls, for an unknown reason, had a titer of I 1:50 when 12 to 14 months old, then returned to negative status at the 1:25 dilution, and remained negative until 3 weeks after challenge. This heifer aborted 3 months after challenge of immunity and *Br. abortus* organisms were isolated from the stomach contents of the fetus, from the vaginal swab, and from the colostrum.

The agglutinin titers at the time of calving, the outcome of gestations, and the results of attempted recovery of *Br. abortus* following challenge are given (Table 1).

After exposure to *Brucella*, one heifer in group A had a reactor titer and aborted. *Brucella abortus* organisms were recovered from the vaginal secretions and colostrum. Recovery of *Br. abortus* from the fetal stomach contents was unsuccessful

due to contamination. *Brucella abortus* organisms were recovered from the colostrum of another heifer in this group, although the calving was normal and the agglutinin titer remained low.

Two of the 6 heifers in group B aborted, and *Br. abortus* organisms were isolated from fetal stomach contents, vaginal swabs, and colostrum.

All 4 heifers in group C calved normally and had negative serum titers at parturition. However, *Br. abortus* was isolated from the colostrum of 1 of the heifers in this group.

Two of the 3 unvaccinated controls became pregnant, both aborted, and *Br. abortus* was isolated from all 3 sources. The agglutinin titer of the remaining non-pregnant control heifer rose to a maximum of 1:200 five weeks after challenge, then receded to negative approximately 3 months after exposure.

Based on the recovery of *Br. abortus* from the heifers or their fetuses at the time of calving, infection was established in 50.0% of the heifers vaccinated when 9 months old, 33.3% of the heifers vaccinated when 6 months old, 25.0% of the heifers vaccinated when 3 months old, and

both (100%) of the pregnant unvaccinated controls.

Discussion

The number of cattle in these trials was small. However, it would appear, under the conditions of this experiment, that vaccination of calves when 3 months old produced at least as good a resistance as that produced in calves vaccinated when 6 and 9 months old.

These results give evidence that the blood agglutinin titers of heifers vaccinated when 3 months old receded to a negative status within 2 to 3 months following vaccination, whereas the titers of the heifers vaccinated when 6 and 9 months old fluctuated in the negative and suspicious zones for many months following the administration of the vaccine. If it can be confirmed that vaccination at the younger age produces fewer residual titers, it could be of considerable value. As the brucellosis eradication program progresses and the incidence of the disease becomes lower and lower, the problem of residual titers takes on greater importance. In fact, the procedure of early vaccination may be found to be beneficial as an interim procedure between the present program and that of control and eradication without the use of vaccine.

Summary

Studies were conducted to determine the effect of age on the resistance and retention of agglutinin titers in calves vaccinated when 3, 6, and 9 months old with strain 19 vaccine.

Mean blood agglutinin titers of the calves vaccinated when 3 months old receded to a negative status (below 1:100) 2 months after vaccination. Titers from the group vaccinated when 6 months old receded to a negative status within 6 months, whereas the mean titer of the group vaccinated when 9 months old re-

ceded slowly but still maintained a suspicious status (titer 1:200) 15 months after vaccination.

The protective value of the vaccine was assessed on the basis of recovery of *Brucella abortus* by cultural methods from specimens obtained from each heifer or aborted fetus at the time of calving.

All the heifers vaccinated when 3 months old calved normally. However, *Br. abortus* organisms were recovered from the colostrum of 1 of 4 (25%) of the heifers in this group whose immunity was challenged. Two of 6 (33.3%) heifers vaccinated when 6 months old aborted, and *Br. abortus* organisms were recovered from both aborting heifers. Two of 4 (50%) of the heifers vaccinated when 9 months old became infected. One of these aborted, whereas the other calved normally. *Brucella abortus* isolations were made from both aborting unvaccinated controls (100%).

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Systemic Insecticides for Control of Tropical Warble Fly (*Dermatobia hominis*) in Cattle

E. Harrestrup Andersen, D.V.M.

CHLORINATED hydrocarbon insecticides have been widely used for the control of the tropical warble fly, *Dermatobia hominis*, in cattle in Latin America. Dips or sprays applied at 2-week intervals hold infestations to a relatively low level. The ability of these types of insecticides to reduce infestations apparently is due to their residual action which may affect the dipterous egg vectors or the newly hatched larvae. A small number of larvae may be killed during the treatments. However, most encysted larvae are too well protected to be affected by ordinary dipping and spraying procedures.

Systemic insecticides offer a new approach to the control of *D. hominis*. A number of compounds have been tested for larvicidal effect, some of them with promising results. The tests that have been carried out so far follow approximately the same pattern. Different compounds have been applied in different ways and in varying doses to groups of infested cattle. Effects are measured by counting dead and live larvae a few days after treatment, comparing these figures with counts of larvae before treatment. Previously reported data pertaining to some of the most effective compounds tested in this way are summarized (Table 1).

In considering area eradication of *D. hominis* by the use of systemic insecticides, frequency of treatment would have to be based on the length of the larval stage. Number of treatments needed for achieving area eradication would depend on the

length of the complete life cycle of the insect. The length of the larval stage is estimated at 35 to 42 days.⁴ Estimations of the length of the pupal stage varies between 33 and 58 days.^{4,6} The adult insect lives for 1 to 3 weeks.^{4,6} The length of the total life cycle of *D. hominis* may, therefore, be calculated at 120 days at the most with a probable average of 105 days. Thus, treatments would have to be made at approximately 30-day intervals in order to prevent live larvae from dropping to the ground. In theory, 4 treatments of all host animals in an isolated, infested environment would result in eradication, provided the compound used would have 100% larvicidal effect. The field trial described here was based on this reasoning.

A certain fluctuation in the incidence of *D. hominis* infestation is seen under natural conditions, depending upon the rainfall. Normally, infestations begin to increase a short time after the onset of the rainy season and continue to increase during this season. Conversely, a gradual decrease of infestation is seen during the dry season. These fluctuations may be attributed to the pupae's requirement of humid soil for development.⁶ The treatments recorded here were carried out during the rainy season. This timing prevented a natural decrease of infestations during the dry season from causing a false impression of good effect of the treatments.

Materials and Methods

Animals.—Two groups of 50 cattle each were included in the test. The cattle represented varying degrees of crossings of Brahma, Criollo, and European breeds. The colors of the animals varied from almost white to complete black. Group A included 2 bulls and 48 cows, most of which were 3 to 8 years old and pregnant. Seven calves were born dur-

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The author thanks OIRSA for providing the facilities necessary for this field trial and Mr. Oscar Urbina, agricultural engineer, for his collaboration.

TABLE 1—Review of Published Data Dealing with Larvicidal Effects of Different Systemic Insecticides Administered to Groups of Cattle Infested with *Dermatobia hominis* in Latin America

Location	Compound*	Application	Dose or concentration	Animals (No.)	Initial counts	Kill (%)
Nicaragua ²	A	Oral	10 mg./kg.	12	165	98.0
	A	s.c.**	10 mg./kg.	14	290	98.0
	A	i.m.†	10 mg./kg.	4	78	100.0
		Spray of 3/4 of body	1.0%	5	116	96.0
	B	Oral	20 mg./kg.	18	238	100.0
	B	Oral	10 mg./kg.	7	194	100.0
	B	s.c.	40 mg./kg.	5	104	84.0
	C	Oral	40 mg./kg.	8	241	99.0
	C	Spray	0.5%	5	74	71.0
	B	Oral	20 mg./kg.	15	347	97.4
Brazil, Costa Rica, Panama ³	B	Oral	20 mg./kg.	16	183	99.4
	B	Spray	0.75%	15	306	97.4
	B	Spray	0.75%	10	88	100.0
	B	Spray	0.5%	10	208	98.6
Honduras ⁴	B	Oral	20 mg./kg.	10	742	100.0
	B	Spray	0.75%	10	1,434	99.3
	B	Spray	0.75%	25	2,303	99.9
Venezuela, Brazil ¹	C	Oral	50 mg./kg.	.....	.....	100.0
	C	Spray	1.0%	.....	.....	100.0

*Compounds—A=dimethoate (compound 12880), 0, 0-dimethyl S-mercapto-N-methylacetamidodithiophosphate, American Cyanamid Co., Pearl River, N.Y.; B=Dowco 109 (Nalene), 0-methyl 0-(4-tert-butyl-2-chlorophenyl) methylphosphoramidithioate, Dow Chemical Co., Midland, Mich.; C=Bayer L 13/59 (Neguvon, Dipterex), 0, 0-dimethyl-2,2,2-trichloro-1-hydroxy-methylphosphate, Chemagro Corporation, Kansas City, Mo.

**s.c.=subcutaneous; †i.m.=intramuscular.

ing the test period. They were treated in the same way as the adults. One adult died from unknown causes about 3 weeks after the 1st treatment. The death of this animal was believed in no way connected with the treatment, because fatalities in cattle following treatments with organic phosphorus insecticides occur within minutes to a few hours after exposure to the compound.³ The animals of group B were steers and bulls approximately 3 to 4 years old.

Pastures.—The 2 groups of cattle were placed in 2 pastures as far removed as possible from other pastures stocked with infested cattle, in order to reduce to a minimum infestations from adjacent areas. Both pastures were situated within 6 km. of each other at approximately 600 meters altitude at the western slopes of the Cordillera de Guanacaste, Costa Rica. The pastures had been stocked with infested cattle prior to the initiation of the test.

The pasture of group A was the best isolated; it consisted of 200 acres of cleared land completely surrounded by forests. The distance from this to the nearest pasture stocked with infested cattle was estimated at approximately 500 meters. Group B's pasture comprised 125 acres; it was separated only by wire fencing from adjoining pastures sparsely stocked with infested cattle.

Insecticides.—Two types of organic phosphorus compounds were used in the doses and concentrations recommended by the manufacturers. Group A was treated with a 45% solution of dimethoate* in-

jected intramuscularly at 10 mg./kg. of body weight. The weights of the cattle were estimated. Group B was treated with Bayer L 13/59** applied as a spray by means of knapsack-type pumps. Two liters of a 1% solution were used per cow except for the 3rd treatment when 1 liter of a 2% solution was used per cow.

The cattle of group A were sprayed with a chlorinated hydrocarbon insecticide, benzene hexachloride,† for the control of ticks in connection with the 2nd treatment.

Frequency and Number of Treatments.—Four treatments were administered at intervals of approximately 30 days. The total period of treatments, 120 days, is believed to cover the maximum possible period needed for the development of the life cycle of *D. hominis*. All cattle in group A were given 4 treatments; 5, 3, and 1 cattle of group B escaped from the corral during the 2nd, 3rd, and 4th treatments, respectively. It is not known for sure whether those animals were duly treated subsequently.

Counts of Larvae.—Visible or palpable larvae were counted on one side of each animal before each treatment and one month after the last treatment. The figures in Table 2 represent average total number of live larvae per animal.

Efforts were made to arrive at exact counts of larvae; however, certain difficulties are involved in this respect when the larvae are not expelled, as was the case in these countings. Not all the swellings repre-

*Compound 12880, 0, 0-dimethyl S-mercapto-N-methylacetamidodithiophosphate, American Cyanamid Co., Pearl River, N.Y.

**Neguvon (Dipterex), 0, 0-dimethyl-2,2,2-trichloro-1-hydroxy-methylphosphate, Chemagro Corporation, Kansas City, Mo.

†12% gamma isomer.

sent live larvae and in cases in which many larvae lodge closely together, some are easily overlooked. Therefore, the countings can only be considered as approximate.

Observations of Effects on Larvae.—Although the purpose of this field trial was not to determine the mortality rate of larvae in individual cattle, some cattle were examined after each treatment. About 3 to 6 animals in each group were selected at random 3 to 5 days after treatment, and visible or palpable larvae were expelled for the purpose of determining the existence of any living larvae.

Controls.—It was not possible to maintain controls in the pastures holding the principals, because such untreated cattle would provide a reservoir in which *D. hominis* could continue its life cycle. The problem of comparing counts of larvae of the treated and untreated cattle was solved in the following way.

Twenty-five untreated cattle from each farm were selected at random for counting the larvae present one month after the last treatment of the principals. These counts do not give an accurate picture of infestation of untreated cattle, because these cattle had been sprayed at irregular intervals with chlorinated hydrocarbon insecticides for the control of ticks and adult *D. hominis*.

Results

The treatments resulted in a noticeable reduction of larval infestation in groups A and B: the average larval counts of groups A and B decreased from 14.4 to 2.2 and from 28.7 to 1.6, respectively, after 4 treatments. Results are given in Table 2.

From examinations of cattle selected at random 3 to 5 days after each treatment, it was found that the compounds had a good larvicidal effect. Dead larvae appeared flaccid, sometime with a blackish discoloration and necrosis of the posterior portion. The larvae appeared to remain at their original site and to be resorbed by phagocytes rather than to be expelled. At the

end of the test, many cattle had numerous indurated nodules adhering to the skin, about 1 to 2 cm. in diameter. These nodules are supposed to result from the resorption of the dead larvae.

Of the cattle examined in group B, 3 to 5 days after treatment, 1 live larva was found after the 1st treatment, 2 after the 3rd treatment, and 1 after the 4th treatment. No live larvae were encountered after the 2nd treatment. Only 1 live larva was found in the animals of group A examined 5 days after the 4th treatment.

Twenty-eight cattle in group A and 26 in group B were completely free of larvae 30 days after the 4th treatment, as compared with 6 and 9, respectively, at the initiation of the treatments.

Bayer L 13/59 applied as a spray killed the ticks. Dimethoate applied intramuscularly appeared to have no effect upon the ticks. None of the treated animals had any signs of intoxication or other ill effects of the treatments. Intramuscular injections of dimethoate caused neither visible nor palpable local reactions.

Discussion

The results obtained in the 2 groups of cattle show that a notable reduction of *Dermatobia* infestation can be achieved within given areas by 4 treatments with systemic insecticides applied at monthly intervals. The failure to achieve complete eradication may be due to one or a combination of the following factors: (1) The compounds used did not produce 100% mortality or (2) reinfestation occurred as a result of adult flies or egg-carrying insect vectors entering the pastures of the test animals from adjacent areas. The escape of cattle from group B, resulting in

TABLE 2—Average Counts of *Dermatobia* Larvae in 2 Groups of 50 Cattle, Each of Which Was Given 4 Monthly Treatments with 1 of 2 Systemic Insecticides

Group	Insecticide	Counts before 1st treatment	1st treatment	Counts 31 days after 1st treatment	2nd treatment	Counts 29 days after 2nd treatment	3rd treatment	Counts 31 days after 3rd treatment	4th treatment	Counts 30 days after 4th treatment	Counts of 25 controls (Dec. 29)
A	Dimethoate (10 mg./kg., i.m.)	14.4	Aug. 28	22.5	Sept. 28	4.4	Oct. 27	2.2	Nov. 29	2.2	14
B	Bayer L 13/59 (spray)	28.7	Aug. 27	26.5	Sept. 28	10.7	Oct. 27	5.1	Nov. 29	1.6	3.6

incomplete treatment, may be responsible for reinfestation in that group.

Since many wild mammals are known to be hosts of *D. hominis*, wild animals existing in the area might constitute a reservoir from which reinfestation might occur. The prevailing wild mammals in the area are deer and monkeys. Their number is not great, however, and this source of reinfestation was considered insignificant.

The live larvae encountered in the animals 30 days after the treatment, as a result of reinfestation, varied in age from a few days to 4 weeks. The presence of larvae estimated at an age of 4 weeks suggests that reinfestation occurs a very short time after treatment and that the compounds used had little or no residual effect.

Injection appeared to be the easiest and least time-consuming method of applying the systemic insecticides. When injected, the compound must be administered in varying doses according to the weights of the cattle. This requirement may prove an obstacle when mass treatments have to be carried out by unskilled personnel. Furthermore, a systemic insecticide applied as injection has little or no effect on ticks, for which reason additional treatments with acaricides will be necessary in most cases.

In this field trial, each one of the cattle in the 2 groups was treated monthly regardless of evidence of infestation. The possibility exists that the results might have been the same if visibly uninfested animals had been left untreated. If this possibility could be confirmed, the total

cost of the treatment would have been reduced.

Summary

In a field trial in Costa Rica, 2 groups of cattle infested with *Dermatobia hominis* were treated with dimethoate intramuscularly and Bayer L 13/59 applied as a spray. The 2 groups were kept in 2 relatively isolated pastures for the duration of the test. Four treatments applied at monthly intervals did not eradicate the *Dermatobia* larvae (warbles), but a noticeable reduction of infestation occurred in actual larval count per animal when compared with that of untreated control animals.

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Causes of Sudden Death in Sheep

For 2 years, the Edinburgh Veterinary Investigation Center in Scotland compiled a list of diseases in sheep which were characterized by sudden death. The most frequent cause was enterotoxemia (pulpy kidney disease), followed by acute pasteurellosis, hypomagnesemia, hypocalcemia, a combination of these 2, and lamb septicemias. Other diseases listed as causes of sudden death but of relatively low incidence were lamb dysentery, braxy, black disease, blackquarter metritis, redgut, acute fluke infection, clostridial infections of the fetus, and intestinal prolapse.—Vet. Rec., 72, (Nov. 12, 1960): 998.

Distribution of Ovine Virus Abortion in the United States

R. L. Younger, D.V.M., and Hazel D. Parker, Ph.D.

VIRUS ABORTION was 1st described in ewes⁹ in 1950. Studies of the virus,^{1,6} its development forms,¹⁰ and its chemotherapeutic response to antibiotics² suggested that the virus of ovine abortion isolated in Scotland belonged to the psittacosis-lymphogranuloma group. Since 1950, virus abortion in ewes has been reported in Sardinia,⁸ Germany,⁵ France,³ and Hungary.⁴

Ovine virus abortion (OVA) had not been recognized in the United States prior to October, 1958, when it was reported in Montana and Idaho.¹³ It was later shown that the virus of ovine abortion isolated in the United States possessed the same specific antigen as the virus of ovine abortion in Scotland.¹²

Since OVA was a newly described disease in this country, it was important to regulatory officials to know the distribution of the disease for control purposes. In November, 1958, a cooperative project of the Montana Veterinary Research Laboratory and the Animal Disease Eradication Division of the Agricultural Research Service was instituted to determine the distribution of the disease in the United States. A request was made for state and federal veterinarians to submit serum samples to this laboratory from any nonbacterial abortions in sheep.

Materials and Methods

Serum samples were obtained from 18 states and tested for OVA by a complement-fixation test.¹¹ This procedure employs

psittacosis-lymphogranuloma group antigen prepared from the virus of ovine abortion. Although this antigen will cross-react with antisera against psittacosis-lymphogranuloma organisms other than that of ovine abortion, fixation at a dilution of 1:32 or higher by serum from aborting ewes signifies presence of the disease.¹¹

Results

From Nov. 1, 1958, to Oct. 1, 1960, 2,396 serum samples from 93 flocks of sheep in 18 states were tested for OVA. Following the classification¹² established in Scotland designating suspects and reactors to the test, 181 serum samples or 8% of the total number of serum samples tested had 1:16 titers and were classed as suspects. Two hundred serum samples or 12% of the total tested had 1:32 or higher titers and were classed as reactors (Table 1).

Of the 93 flocks, 39 (42%) were classed as reactor flocks, 8 (9%) as suspects, and 46 (49%) as nonreactor flocks. Sheep from 32 (70%) of 46 nonreactor flocks did not have any titers (1:8 or higher) to the test. Sheep from 14 of 46 nonreactor flocks did have 1:8 titers to the test. Serum samples tested from sheep in 5 mountain states, 2 Pacific coast states, 1 north central state, and 1 south central state had titers of 1:32 or higher in the test. Serum samples from sheep in 2 north central states had titers of 1:16.

Complement-fixation test results were confirmed in 6 flocks of sheep in 3 states by virus isolation from fetal cotyledons and membranes from ewes which aborted. In addition to the virus isolation, elementary bodies were demonstrated on microscopic examination of impression smears of fetal cotyledons and membranes in 4 flocks in 2 states.

Among 7,766 ewes from 15 infected

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Contribution from the Montana Veterinary Research Laboratory (Montana Experiment Station and Livestock Sanitary Board cooperating), Montana State College. Agricultural Experiment Station, paper No. 525, journal series.

TABLE 1—Ovine Virus Abortion Complement-Fixation Titers from Flocks in 18 States

State	No. of flocks	Titers								Negative	Total
		1:8	1:16	1:32	1:64	1:128	1:256	1:512	1:1,024		
Idaho	31	129	94	53	51	28	24	6	6	810	1,200
Mont.	19	102	42	53	19	7	....	....	....	396	619
Utah	2	26	16	3	3	....	....	....	....	95	144
Wyo.	9	10	15	13	....	....	2	1	....	44	85
Ariz.	1	10	4	6	....	....	1	....	....	59	80
Colo.	1	....	....	....	....	....	....	....	....	6	6
N.M.	1	....	....	....	....	....	....	....	....	15	15
Calif.	5	2	2	1	....	....	....	....	....	53	58
Ore.	2	2	1	1	....	....	....	....	....	7	11
Iowa	7	4	2	1	....	....	....	....	....	16	23
Wis.	1	....	....	....	....	....	....	....	....	15	15
Neb.	2	....	....	....	....	....	....	....	....	26	26
N. Dak.	4	5	3	....	....	....	....	....	....	32	40
S. Dak.	3	1	1	....	....	....	....	....	....	41	45
Minn.	1	....	....	....	....	....	....	....	....	5	5
Tenn.	2	6	1	1	....	....	....	....	....	11	19
W. Va.	1	....	....	....	....	....	....	....	....	1	1
N.Y.	1	....	....	....	....	....	....	....	....	6	6
Total	93	297	181	132	72	35	27	7	6	1,639	2,396
%	....	12.3	7.5	5.5	3.0	1.4	1.1	0.3	0.3	68.4	....

flocks from which abortion rates were available, 656 (8%) abortions were reported. Rates in individual flocks varied from 1% of 871 to 64% of 275 ewes.

Discussion

The interval between the 1st abortions and blood collection for test purposes varied. Blood samples were collected from ewes during abortion epizootics or shortly afterward to effect a rapid diagnosis, or in the fall after abortions had occurred in the spring lambing season. Complement-fixing antibodies are usually present within 2 weeks after abortion and persist for at least 4 months or longer.¹¹ Undoubtedly, the time of obtaining samples from ewes would affect test results.

Serum samples from ewes experimentally inoculated with the virus of ovine abortion and known to be infected may give low dilution (1:8) reactions⁷ to the complement fixation test. In 32 (34%) of the 93 flocks tested, none of the ewes had any titer (1:8 or higher). On the other hand, a number of low titer reactions were usual in flocks in which one or more high titer reactions were observed. This suggests that nonspecific reactions with sheep serum and OVA antigen are uncommon and that 1:8 titers may signify infection. It is noteworthy that, in setting 1:32 as the lowest titer which would signify the presence of the disease, titers were correlated with clinical abortion rather than infection alone.¹¹

The serum samples were selected ones in that most of them were from the western half of the United States and from flocks which were having abortions in which no bacterial agent was implicated. Although this would mean that flocks tested at random would be likely to have a lower rate of infection than the group studied, this is not necessarily true. Of 4 flocks at the Montana State College which were under close observation for a number of years and which had low abortion rates, all were infected.

The abortion rates were undoubtedly weighted in favor of the higher values since specimens are more readily sent in from flocks with great losses, whereas a few abortions in a flock are likely to be considered normal. Since premature births, stillbirths, and weak lambs also result from this disease, part of the losses from these conditions are also due to ovine virus abortion. When these conditions occur at a low rate in a flock, as is common, their infectious nature may not be suspected. It is entirely possible that if this disease is as widely distributed as the limited information now available suggests, the total of the low level losses may exceed the total of those which occur at a high rate in some flocks.

Unexplained abortions of an apparently infectious nature have been observed among flocks tested at the Veterinary Research Laboratory for a number of years. Many of these now have been found due to virus abortion. This fact together with the

high incidence and wide distribution of the disease among flocks studied indicates that ovine virus abortion was not recently introduced into this country, rather it has been enzootic here for a considerable time.

Summary

1) Among flocks of aborting sheep in which no bacterial agent was implicated, about 50% were found by serologic tests to have ovine virus abortion.

2) Serum samples from ewes in 18 states were obtained for test purposes. In 11 states from which 2 to 31 flocks were tested, evidence of infection was obtained. In 7 states from which only 1 or 2 flocks were tested, no evidence of infection was obtained.

3) The results indicate that the disease is rather widely distributed in the United States and is not a newly introduced one.

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ANNOUNCEMENT

Beginning with the July 1 issue of the JOURNAL, pages will be numbered consecutively for the entire volume. This will simplify indexing, makeup, and other production procedures.

Also effective with this volume, The Bookshop Bindery in Chicago will retain all editorial or textual material when they bind the JOURNAL for their customers. Thus, features like *What Is Your Diagnosis?*, *PR Page*, *History Page*, *Washington News*, *Council Report*, and *Clinico-Pathologic Conference* (see July 15 issue) will be retained in bound volumes. Journal readers who prefer to have the JOURNAL bound locally may wish to issue similar instructions to their bindery.

Pentobarbital Anesthesia in Lions with Special Reference to Preanesthetic Medication

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PENTOBARBITAL SODIUM has been used to produce surgical anesthesia in domestic animals for over 25 years.^{10,12} In the United States and in other countries, this drug has also been used to anesthetize large *Felidae*.^{4,6,8,9,11,16} Some authors have advocated the use of ataractic drugs in these animals.^{3,6,9,11} This study was undertaken to evaluate the preanesthetic agents, promazine* and meperidine,** and pentobarbital anesthesia in lions. Several physiologic and pharmacologic measurements were made during pentobarbital anesthesia.¹⁷

Experimental Procedure and Results

Five healthy lions were brought to the College of Veterinary Medicine for experimental studies and euthanasia (because there were not adequate facilities to keep them). The lions were placed in a large aluminum cage¹⁶ and "squeezed" into one end by means of heavy plywood boards which were slid through the bars of the cage. They were given promazine hydrochloride (50 mg./ml.) and meperidine hydrochloride (50 mg./ml.) intramuscularly

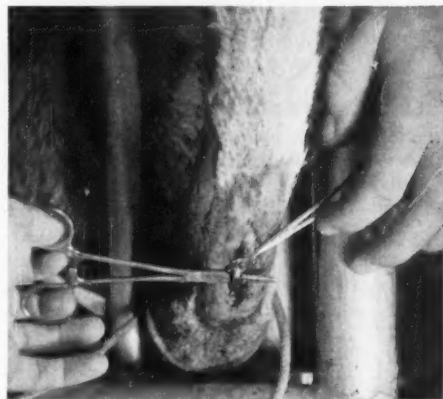


Fig. 1—Following the injection of a local anesthetic, the lateral caudal vein of the lion was exposed. A Kelley hemostat has been placed directly below the vein to illustrate its size.

and later they were anesthetized by intravenous or intrapleural injection of pentobarbital sodium (65 mg./ml.).

Since the ages of lions, preanesthetic medication, anesthetic procedures, and experimental studies differed, they will be considered individually.

Lion 1.—This lioness was 2 years old and weighed 73 kg. (160 lb.). The respiratory rate before the administration of preanesthetic drugs was 28/minute. Since this lioness had spent most of her life in private homes, she was quiet and relatively uninfluenced by restraint and shipment. Following intramuscular administration of promazine hydrochloride (7 mg./kg. of body weight) and meperidine hydrochloride (17 mg./kg.), which is approximately 50% greater than the recommended dose

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*Sparine (promazine hydrochloride), Wyeth Laboratories, Philadelphia, Pa. **Demerol (meperidine hydrochloride), Winthrop-Stearns, Inc., New York, N.Y.



Fig. 2—This male lion was vicious and aggressive prior to the administration of preanesthetic agents.

of the drug for the domestic cat,⁵ she became unaware of her surroundings, lethargic, protruded her tongue, and pressed her head against the bars of the squeeze cage. The nictitating membranes extended across



Fig. 3—One hour after the administration of promazine (9 mg./kg.) and meperidine (22 mg./kg.), the lion was prostrate and oblivious to its surroundings. Muscle tremors were observed at this time.

the corneas. At no time was there any evidence of excitement. After 1 hour, the respiratory rate was 16/minute, and the lioness did not object to having her tail prepared for venipuncture. Following the subcutaneous injection of 10 ml. of 2% procaine hydrochloride, a coccygeal vein was exteriorized from the ventrolateral region at the base of the tail (Fig. 1) similarly to the method described by Nouvel.¹³

Pentobarbital sodium, 18 mg./kg. (20 gr.), was injected into the coccygeal vein during the ensuing 5 minutes until the palpebral, corneal, digital, and ear-whisker reflexes were abolished. The respiratory rate was decreased to 12/minute and the pulse was 128/minute. After 20 minutes, an additional 19.5 mg./kg. (22 gr.) of pentobarbital sodium was slowly administered until respiration ceased. The pulse remained in the range of 120 to 130/minute until cardiac irregularities occurred following cessation of respiration. Except for a few ascarids in the intestinal tract, no pathologic changes were found on necropsy.

Lion 2.—This male lion, 3 years old and weighing 121 kg. (265 lb.), was extremely aggressive and vicious (Fig. 2). He was confined against the side of the aluminum cage with plywood partitions, and meperidine hydrochloride (22 mg./kg. of body weight) and promazine hydrochloride (9 mg./kg.) were administered intramuscularly. This is approximately twice the recommended dose for domestic cats.⁵ One hour after the administration of these drugs, the lion was prostrate and oblivious to its surroundings (Fig. 3). He would move his head when touched about the ears, but did not assume sternal recumbency when pulled to the opposite end of the cage. Tremors were observed and, on one occasion, they approached a mild convulsion. The tail was drawn out between the bars and a polyethylene catheter was inserted into the caudal vein with the aid of procaine anesthesia. Reflexes were abolished by injecting pentobarbital sodium, 13 mg./kg. (25 gr.), by this route. Due to return of the palpebral reflex, an additional 1.6 mg./kg. (3 gr.) of pentobarbital sodium was administered 20 minutes after the lion was initially anesthetized. Although the feet were bound to prevent any laboratory accident, the lion remained under deep

TABLE 1—Hematologic Observations in 4 Lions Anesthetized with Pentobarbital Sodium

Lion No.	Hg. (Gm./100 cc.)	RBC (10 ⁶ /cmm.)	Ht. (%)	WBC (10 ³ /cmm.)	Lym. (%)	Neut. (%)	Eosin. (%)	Baso. (%)	Mono. (%)
2	11.0	8.1	35	7.4	5	95	0	0	0
3	8.9	6.7	30	6.6	32	68	0	0	0
4	9.7	7.4	32	9.8	19	76	1	0	4
5	11.6	—	38	4.0	44	44	2	0	0

Blood samples for the above determinations were taken as soon as the animals were anesthetized.

surgical anesthesia during the remainder of the experiment. After a series of physiologic and pharmacologic measurements, the lion was euthanatized with 16 mg./kg. (30 gr.) of pentobarbital sodium. The total time between initial anesthetization and euthanasia was 6½ hours. Upon necropsy, no visible gross lesions were observed.

Lion 3.—A female lion 8 months old, which weighed 27 kg. (60 lb.), was given meperidine hydrochloride (22 mg./kg.), promazine hydrochloride (4.4 mg./kg.), and pentobarbital sodium (7.3 mg./kg., 3 gr.) intramuscularly at the same time. This is twice the recommended dose of meperidine. The lioness became ataxic, trembled, and made spastic movements. An additional 21 mg./kg. (5 gr.) of pentobarbital sodium was administered intravenously. The ear-whisker reflex was abolished 15 minutes later, but the palpebral and corneal reflexes were still present. The rectal temperature was 38.6 C.; the pulse, 140; and the respiratory rate, 44/minute. The jugular pulse was prominent. Fifteen minutes later, another 2.4 mg./kg. (1 gr.) of pentobarbital sodium was administered in an unsuccessful attempt to abolish the palpebral and corneal reflexes. Blood samples were taken at this time. The temperature was 37.7 C.; pulse, 112; and respiratory rate, 32/minute. The mucous membranes became cyanotic, and 11 mg./kg. of pentylenetetrazol* was administered intravenously. Respiration was slow and labored, then ceased and was not reinstated by injection of 37 mg./kg. of pentylenetetrazol intravenously. Cardiac arrest, which followed, was uninfluenced by 2 ml. (1:1,000) of epinephrine hydrochloride. No gross lesions were observed at necropsy.

Lion 4.—This male lion 10 months old weighed 39 kg. (85 lb.). It was anesthetized by simultaneous injection of meperidine hydrochloride (22.0 mg./kg.) and

TABLE 2—Chemical Observations in 4 Lions Anesthetized with Pentobarbital Sodium

Lion No.	Glucose (mg./100 cc.)	BUN (mg./100 cc.)	CO ₂ comb. (vol. %)	Power (mEq./l.)
2	150	27	40.9	18.4
3	111	18	53.0	23.0
4	94	12	40.9	18.4
5	—	15	44.7	20.4

Additional findings—in lion No. 2, the total plasma protein was 6.2 Gm./100 cc. and the serum calcium was 12.6 mg./100 cc. The protein content of the cerebral spinal fluid was less than 50 mg./100 cc. The cerebral spinal pressure was 10 mm./Hg.

promazine hydrochloride (4.4 mg./kg.) intramuscularly as well as pentobarbital sodium (15 mg./kg., 9 gr.) intrapleurally. There was no excitement. Thirty minutes later the temperature was 38.6 C.; the pulse, 164; and the respiratory rate, 24/minute. At this time, there were no reflexes and the anus was without tone. Seven and one-half hours after being anesthetized and at the conclusion of study of the effect of several autonomic drugs on blood pressure, the lion died spontaneously. Death was attributed to loss of blood and trauma during the physiologic and pharmacologic studies.

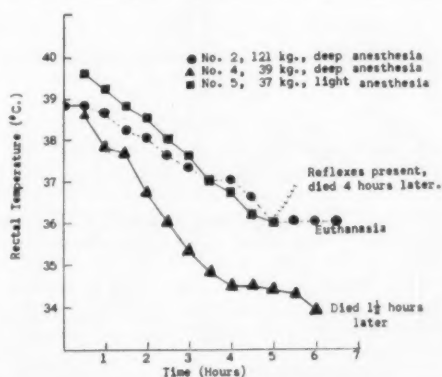


Fig. 4—The effect of pentobarbital sodium anesthesia on the rectal temperature of lions.

*Metrazol (pentylenetetrazol), Knoll Pharmaceutical Co., Orange, N.J.

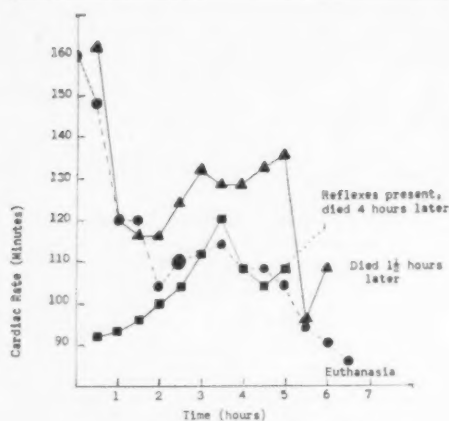


Fig. 5—The effect of pentobarbital sodium anesthesia on the cardiac rate of lions.

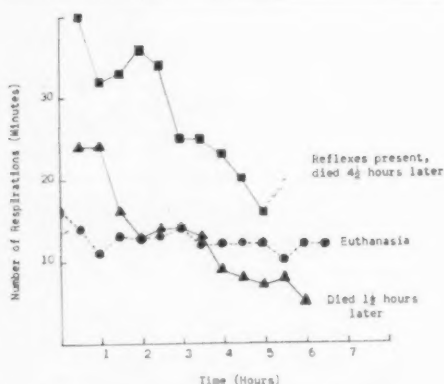


Fig. 6—The effect of pentobarbital anesthesia on respiration of lions.

Lion 5.—A female lion cub, 10 months old and weighing 37 kg. (83 lb.), was immobilized by the intramuscular injection of

meperidine (11 mg./kg.) and promazine (9 mg./kg.) and intrapleural administration of pentobarbital sodium (5 mg./kg., 3 gr.). In 3 minutes, she was prostrate, but all reflexes were present. The cub did not seem excited. When the tail and saphenous veins were examined, she crawled about the cage. An additional injection of pentobarbital sodium. (14 mg./kg., 8 gr.) was administered intrapleurally. One half hour later, all reflexes were abolished except the corneal reflex. Though the lion moved her feet and ears during the course of the experiment, she did not seem to be in pain and was not given additional anesthetic. She died spontaneously at the end of the pharmacologic experiment with autonomic drugs 9 hours after being anesthetized. Evidence of shock such as pallor of the mucous membranes and muscles, venous stasis of the large vessels, and congestion of the liver and spleen were the only necropsy findings.

Numerous physiologic and pharmacologic measurements were made during the experimental period in the last 4 lions. These results will be reported elsewhere.¹⁷ Other results which were obtained from blood and urine samples taken early in the course of the experiment have clinical application and are reported (Table 1-3). Temperature, pulse, and respiratory rates of 3 lions are summarized (Fig. 4-6) because of their clinical significance.

Discussion

Anesthesia in large *Felidae* poses many hazards to the anesthetist as well as the patient. Preanesthetic medication in animals greatly facilitates the administration of both injectable and volatile agents. The use of either promazine or meperidine alone is beneficial, but the combination of these agents is more effective. The critical

TABLE 3—Urologic Observations in 2 Lions After Being Anesthetized with Pentobarbital Sodium

Lion No.	Color	Turb.	Sp. gr.	pH	Sugar	Acetone	Bilirubin	Occ. blood	Albumin	Casts	RBC	WBC	Epih. cells	Comments
4	Yellow	Clear	1.068	5.0	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.	Occas.	Neg.	Fat cells
5	Yellow	Slight cloud	1.042	6.5	Neg.	Neg.	Neg.	Neg.	Trace	Neg.	Neg.	Many	Neg.	Triphosphate crystals

issue in the use of these drugs is the dosage. In the domestic cat, it has been found that meperidine (11.0 mg./kg.) and promazine (4.4 mg./kg.) produce chemical restraint as well as significant potentiation of pentobarbital sodium.⁵

In lion 1, a 50% increase in this dose produced such marked sedation that an intravenous injection was easily accomplished under local anesthesia via a coccygeal vein. This was a docile animal, and such results could not be anticipated in every lion.

In lion 2, which was aggressive and vicious, we were convinced that the previous preanesthetic dose would not be adequate and, therefore, the regular preanesthetic dose of meperidine and promazine was doubled. Muscle tremors and convulsive movements similar to those reported in cats following this dose of meperidine were observed.² Therefore, it was felt advisable to counteract any possible excitatory effect of meperidine with concurrent administration of pentobarbital sodium. In lion 3, the usual preanesthetic dose of meperidine was doubled, whereas the dose of promazine was not. A small amount of pentobarbital sodium, 7.2 mg./kg. ($\frac{1}{4}$ the calculated dose), was added in its place. Pentobarbital sodium has been employed to prevent the convulsive action of meperidine in other species,¹⁸ but this dose of pentobarbital sodium did not appear effective in this lion by intramuscular route. The abolishment of all reflexes with pentobarbital sodium in the great cats is attended by great danger from either acute respiratory arrest or delayed recovery, with its associated risks.⁶ The death of this lion before abolishment of all of the reflexes with pentobarbital sodium underscores this hazard.

Lion 4 was given a similar preanesthetic dose of meperidine (22.0 mg./kg.) and promazine (4.4 mg./kg.) and one half the calculated anesthetic dose of pentobarbital sodium intrapleurally. There was no excitement, and reflexless anesthesia ensued. The lack of excitement in this procedure suggested re-evaluation of the use of pentobarbital via the intrapleural rather than the intramuscular route. Death in this instance was attributed to traumatic and hemorrhagic shock.

Lion 5 was given meperidine (11 mg./kg.) and twice the usual dose of promazine (9 mg./kg.) along with a small intrapleural

dose of pentobarbital sodium (5 mg./kg.). There was good sedation, but intravenous anesthesia would have required forceful physical restraint. The lion was anesthetized (except for the corneal reflex) with an intrapleural injection of pentobarbital sodium (14 mg./kg.).

Hematologic, urologic, and the few chemical determinations were comparable to those of the domestic cat.¹⁴ The white blood cell count was low, but this may be partially due to pentobarbital sodium anesthesia. The lymphocyte count was low in lions 2 and 4 and high in lion 5. Conversely, the neutrophil count was high in lions 2 and 4 and low in lion 5. The blood glucose and urea nitrogen concentrations were elevated in lion 2. The serum samples did not clot even after centrifuging. This was attributed to heparin which was administered to the lions to keep the polyethylene catheters free of clots. These results were not included, with the exception of that of lion 2. The most striking finding in the urinalysis was the high specific gravity.

In Figure 4, a greater decrease in the rectal temperature is seen in one of the smaller lions, No. 4. This decrease in temperature would probably have been similar in the other small lion except that it was not as deeply anesthetized. At the same ambient temperature, the fall in body temperature in domestic cats has been found to be directly influenced by the depth and duration of anesthesia.⁷ As illustrated in Figure 5, the cardiac rate does not provide a valuable clue to the status of the patient. In the dog, an increase in the cardiac rate has been demonstrated during surgical anesthesia with pentobarbital sodium.¹ This was characterized by an abrupt increase in the cardiac rate after induction, followed by a return to the normal rate in 45 to 90 minutes. The cardiac rate then increased above the normal rate. Most of these observations did not last over 2 hours and were not complicated by traumatic or hemorrhagic procedures.

The respiratory center deserves special attention when the barbiturates are employed, since it is the focus of the fatal action. Death was anticipated in lion 4 when the respiratory rate decreased below 10 and the shock-inducing procedures were continued. The large lion, No. 2, whose cardiovascular system could withstand numerous stresses and whose respirations remained frequent and deep, survived the

experiment. Lion 5, which undoubtedly had less anesthetic depression, probably would have survived if the final series of autonomic drugs had been omitted.

Summary and Conclusions

1) Meperidine and promazine facilitate restraint and potentiate pentobarbital sodium anesthesia in the lion. The recommended dose of these drugs in lions is: meperidine (11.0 mg./kg. of body weight) and promazine (4.4 to 9.0 mg./kg.).

2) Doses of meperidine greater than 17.0 mg./kg. are prone to produce tremors and convulsive movements. In our tests, this action was not counteracted by intramuscular administration of a small dose (7.3 mg./kg.) of pentobarbital sodium; however, it was counteracted by a larger (15.0 mg./kg.) intrapleural injection of pentobarbital sodium. Promazine (4.4-9.0 mg./kg.) did not appear to influence this convulsive action.

3) Pentobarbital sodium is a dangerous anesthetic when used to abolish all reflexes in lions.

4) With minor exceptions, the hematologic and urologic values from these 4 lions are similar to domestic cats.

5) The body temperature in one lion, which was small and deeply anesthetized, fell much more rapidly than 2 other lions, which were either large or not so deeply anesthetized.

6) The pulse rate alone was an unreliable guide to the anesthetic state.

7) The respiratory rate was a valuable aid in evaluating the anesthetic state. As in the domestic cat, when there are less than 10 respirations per minute, there is danger of death. In one instance, respiratory arrest occurred when previously there had been more than 10 respirations per minute.

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Laparotomy Contraindicated in Dogs with Adrenal Cortical Dysfunction

Exploratory laparotomy is contraindicated in the dog with adrenal cortical failure because it cannot withstand the stress of surgery. A screening test for adrenal cortical function may be performed by determining the level of eosinophils before and after the injection of 10 mg. of ACTH; with normal adrenal glands, circulating eosinophils should be absent in 7 hours.—*Canad. Vet. J.*, 2, (May, 1961): 177.

Juvenile Osteoporosis (Osteogenesis Imperfecta)—A Calcium Deficiency

Wayne H. Riser, D.V.M., M.S.

IN YOUNG domestic and zoo feline and canine animals, there occurs a skeletal disease often spoken of as "osteogenesis imperfecta" or "paper bone disease." More properly, osteogenesis imperfecta is a term pertaining to a disease of man and is one of the most frequent hereditary bone disorders affecting babies, both prenatally and postnatally. The disease in carnivores, also considered by many to be hereditary, is quite similar radiographically to that in man. It occurs frequently in certain strains and breeds of domestic and zoo cats and less frequently in dogs.

In osteogenesis imperfecta in children, the osteoblasts are retarded in form and differentiation. On histologic study of bone sections taken from affected cats, the osteoblasts are increased in number but appear normal; sometimes they are arranged in rows, 4 to 5 cells deep, around the primary trabeculi. However, they apparently are unable to function without calcium and, on the endosteal cortices, the osteoclasts actively assist with resorption of bone. Thus, histologically, the condition in cats differs from that seen in man.

The knowledge that osteoporosis in kittens occurs after the feeding of low calcium diets is not new. It was reported in 1926,¹ but, because of the general title of the report and because the journal in which it was published is not widely read by veterinarians, the report was not identified with the disease entity that occurs regularly in cats. The investigators were studying calcium storage and did not realize that if they had extended their experiments they would have been able to supply infor-

mation on the cause of osteoporosis in young pet and zoo animals.

Since 1950, an English physiologist studying nutrition has been raising cats in her laboratory.³ She found that infertility and small litters were common and many of the limited number of kittens she raised developed locomotor impairment. Those so affected became reluctant to move, were lame, and were unable to stand; in severe cases, fractures, posterior paralysis, and convulsions developed. The kittens usually grew and ate normally, were fat, and had good coats up to the time of their locomotion difficulty. Upon consultation with practicing veterinarians, she soon realized that the condition seen in her cats was identical to "osteogenesis imperfecta," generally believed to be hereditary. However, on further inquiry, it was found that the cats affected were those confined and given food from a single source, most of which was meat. Because of its relatively low cost, the meat usually was either beef or mutton heart. The young of cats that roamed and were given table scraps to supplement their diet were seldom affected.

In the investigator's laboratory, heart meat was fed for economic reasons, and the cats accepted it readily. But she discovered that if one half the heart diet was replaced at the onset of clinical signs with whole cream-milk powder, potato, a mineral mixture, ground fish containing bone, and yeast, the kittens recovered rapidly. However, the signs returned if the cats were again fed the heart diet exclusively. This suggested that the illness was due to some dietary deficiency and not to genetics, infection, or other external causes.

Upon analysis, 100 Gm. of the heart meat was found to contain only 10 mg. of calcium, although phosphorus content was high. It was believed to contain sufficient vitamins. It was calculated that if a kitten were fed an exclusive heart meat diet of

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150 Gm. per day, it would be given not more than 15 mg. of calcium daily. The normal requirement is approximately 70 to 90 mg. per day for a growing kitten. In 2 trials, it was shown that the kittens lost 31 and 44 mg. of calcium daily in feces and urine, respectively. However, in spite of this, the calcium and phosphorus blood levels were usually within the normal range. It was then speculated that osteoporosis occurred as a result of calcium being resorbed from the bone to maintain a normal calcium blood serum level.²

In the summer of 1960, the English investigator reported that she consistently could produce osteoporosis and fractures in young, healthy kittens in a matter of weeks if they were fed beef heart and distilled water. She thought people should know that this disease was dietary in nature and not hereditary and urged me to confirm her work.

As a preliminary experiment, I obtained 4 healthy, fat kittens, 12 weeks old, weighing 1,500 Gm. each, that had been raised on a good diet. On radiographic examination of the kittens, the skeletons appeared well developed and of normal density. One kitten was selected for a control to be fed a diet of a commercial cat food and milk. The other 3 were housed together in a large cage and given a diet of raw ground beef heart, with the bone removed, and distilled water. All 4 kittens were fed all they would consume and were weighed and radiographed every 10 days. They ate well, and the 3 principals gained at the same rate as the control. At 60 days, it was evident that the bones of the 3 principals were slightly less opaque than those of the control, but there was no noticeable difference in weight, coats, disposition, or desire to play. At 90 days, the skeletal density of the principals was much less than that of the control, but there was little difference in the general appearance, appetite, or weight.

On the 110th day, one principal refused to eat, objected to being handled, and would not move except with considerable urging. The next day, this kitten could not be persuaded to move at all and, on radiographic examination, the bone cortices appeared extremely thin. There were folding fractures of the bodies of 2 lumbar vertebrae and 1 femur. Also on this day (111th), the 2 other principals refused to eat or move; on radiographic examination, there were extensive osteoporosis, widened intramed-

ullary cavities, and thin cortices of all long bones. One kitten had folding fractures of 1 femur and 2 vertebrae and a decalcification of the distal end of the left ulna. The other one would not walk or eat, but there were no fractures radiographically. The skeleton, appearance, and appetite of the control cat were normal.

The control and the 2 principals with fractures were euthanatized, and tissues were saved for histologic study. The remaining kitten was treated with 10 cc. of calcium gluconate intravenously and within 48 hours he was eating and playing again. At this time, an attempt was made to change the diet of this cat to a commercial cat food and milk, but he would eat only a small amount of the new diet; he relished the ground heart whenever it was offered. This cat was given the new ration exclusively to see if he would learn to like it. For the next 137 days he seemed normal; he played and responded to being petted, but ate only small amounts of the new diet. At the end of this period, a 1,200-Gm. weight loss had resulted. He developed muscular tetany and was unable to stand. He was given 10 cc. of calcium gluconate intravenously but did not improve. On the 2nd day after treatment, 139 days after the 1st crisis, he developed convulsions and was euthanatized.

On radiographic examination at this time, thickness of the bone cortex had increased slightly and medullary cavities had narrowed somewhat during the convalescent period. There were no fractures. At the time of euthanasia, the epiphyses were almost closed. The lessened demand for calcium for growth and the increased calcium content in the food, although the intake was small, probably allowed for increased osteoblastic activity in the bone. Although there had been restricted calcium intake and marked osteoporosis, the length of bones was normal when compared with those of the control.

Starting when pups were 4 weeks old and using a diet of beef heart and distilled water, I have produced osteoporosis with folding fractures of the long bones within 35 days.

The preliminary work reported here supports the premise that the condition is dietary instead of hereditary. Further observations should prove that the disease radiologically resembles osteogenesis imperfecta in children but that the 2 conditions differ

histologically. It is suggested that the condition in lower animals be given a more nearly appropriate name; e.g., juvenile osteoporosis.

For treatment, it has been suggested that iodine and large amounts of calcium in the form of calcium gluconate, milk, cottage cheese, and ground bone be added to the diet.³ Normal iodine intake lowers the excretion of calcium from the bowel and kidneys. Iodine may be supplied by adding 50 mg. of KI to 100 cc. of water or by adding 3 or 4 drops of this solution to the food each day.

Many popular cat foods, such as muscle meat, heart, liver, kidney, tunafish, and corn meal, are low in calcium, but changing the diet of a cat is not easy. Once a cat establishes its eating habits, it may starve rather than change, as was illustrated in

this report. However, cats, when young, can be taught to eat many foods. Improper diet is probably an important reason why certain catteries have so much trouble with osteoporosis and why it appears to some that a hereditary factor may be involved. Improper diet, consisting of meat with little bone or mineral supplement, is probably the reason why zoo cats develop osteoporosis.

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Hip Dysplasia

"Work on this important condition is progressing slowly. Unfortunately, slight confusion has arisen in the use of the term 'Hip Dysplasia,' which is normally taken to imply congenital dislocation of the hip. In the only veterinary paper on the subject (by B. Singleton), the term is made to include Perthe's Disease, osteochondritis dessicans, and slipped epiphysis, the etiologies of which are quite different and the latter 2 definitely not hereditary.

"At last breeders are becoming aware of the possible crippling effect of dysplasia of the hip and stifle joints of the dog, and considerable interest is being shown.

"One breed society has approved a scheme to x-ray all breeding stock in an effort to eliminate this disease. Dogs are either brought to the Canine Health Centre for x-ray examination, or taken to their own veterinary surgeon and the plates forwarded to the Centre for final diagnosis. All dogs showing no evidence of deformity are certified as free from the disease. In those dogs found to be affected, notes are made of their pedigrees, so that a pattern of inheritance can be traced. So far, very few dogs have been passed. A number of breeders in another breed are also taking advantage of the same scheme."—*Anim. Health Trust, 10th Report, London, England (1957-1960): 62.*

Use of Trimeprazine in Dogs and Cats

Francis T. Candlin, D.V.M.

TRIMEPAZINE[®] is a phenothiazine derivative that possesses antihistaminic, antipruritic, and antitussive properties in addition to tranquilizing and sedative action. It has a wide variety of uses, a fact established by articles in journals of allergy,¹ anesthesiology,² clinical medicine,³ dermatology,⁴ and psychiatry.⁵ This report attests to several actions of the drug in small animals.

Tranquilizing Action

The clinical action of tranquilizers in small animals can be evaluated in terms of duration and intensity of effect. Although these actions vary somewhat with size of the dose, some tranquilizers now in use have a minimal duration of effect of 18 to 24 hours and a maximal duration of 48 to 72 hours. The degree of tranquilization is usually proportional to the duration; thus, the longest-acting tranquilizers usually produce the greatest degree of depression.

However, some long-acting, deeply depressing tranquilizers are unreliable in controlling nervous dogs. When these dogs are aroused from a deeply stuporous state, there are signs of hysteria. The period of excitation makes it almost impossible to complete the procedure for which the drug was originally given. Further, since many procedures, such as trimming nails, scaling teeth, grooming, and examining sore ears or cut foot pads, require only a few minutes, tranquilizing an animal for as long as 48 hours often seems unwarranted.

The purpose in describing the disadvantages of some of these long-acting tranquilizers is to emphasize the advantages of a short-acting tranquilizer. Trimeprazine is a short-acting tranquilizer that exerts maximal effect 1 hour after injection, re-

mains effective for about 6 hours, and provides excellent control of the patient while producing only a minor degree of stupor. Furthermore, the injectable form can be given subcutaneously with minimal pain, and the dose, 1 mg./lb. of body weight, is convenient.

I have used the drug extensively in my practice. Dogs left with me for the day for the aforementioned procedures were tranquilized on arrival and were normal when released in the evening. Most owners were not aware that any tranquilizer had been administered. Even when dogs were released 2 hours after administration of trimeprazine, they greeted their owners in an almost normal manner and responded well to commands. In one procedure alone, trimming and bathing, over 200 doses of trimeprazine were administered to unruly dogs. The results tabulated on 200 dogs were as follows: in 176 (88%), response was excellent; in 18 (9%), response was good; and, in 6 (3%), response was unsatisfactory. In addition, the time necessary to groom each dog was reduced by 1/5 to 1/3, an average saving of 10 minutes to 1 hour per dog.

Antipruritic Action

Early results of treatment of dogs with pruritus were disappointing. The 1st 25 dogs were given 2.5 mg./25 lb. of body weight. In none was pruritus relieved satisfactorily; in 3, there was a fair degree of relief; and, in the rest, there was no improvement.

Later, I doubled the dose in a series of 40 dogs. In 3, results were excellent; in 20, results were good; and, in 17, results were poor. The addition of 1 mg. of prednisolone to each 5 mg. of trimeprazine seemed to increase effectiveness. In 53 dogs with pruritus, results were excellent in 37, good in 13, and poor in only 3. Coincidentally, owners reported that their pets had marked relief

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[®]Temaril, Smith Kline & French Laboratories, Philadelphia, Pa.

from coughs and nasal congestion, probably of allergic origin.

In cats, pruritus was more dramatically relieved. The cats that responded best were those with an unnamed syndrome peculiar to cats in which pruritus is so intense that they almost "go berserk." A dose of 2.5 to 5.0 mg., given orally 3 times daily, controlled the pruritus in all but 1 of 15 cats treated. In combination with $\frac{1}{2}$ mg. of prednisolone, 2.5 mg. of trimeprazine completely relieved the coughing spasms seen in allergic bronchitis (asthma) in 17 cats.

Antiemetic Action

Small oral doses of trimeprazine (2.5 mg./25 lb. of body weight), given 1 hour before traveling were sufficient to control vomiting associated with motion sickness in dogs. In dogs inclined to be nervous when traveling, the same dose insured manageability. Similar doses controlled nausea in dogs after food poisoning or mild chemical poisoning, thus allowing them to retain food and water.

Use in Anesthesia

As an anesthetic premedication, trimeprazine is especially useful. In this study, 246 dogs were given trimeprazine subcutaneously 1 hour prior to anesthesia. The dose was 1 mg./lb. of body weight. In those breeds in which excessive salivation is a problem (Pugs, Boxers, Pekingese, and Boston Terriers), 1/150 gr. of atropine was added to each 25 mg. of trimeprazine. Anesthetic agents consisted of thiamylal sodium or combinations of thiamylal sodium and pentobarbital sodium. All patients

were quiet and cooperative. Induction was smooth and uncomplicated. Recovery from anesthesia was particularly devoid of excitation and was the closest to natural awakening that has been observed in my 15 years of practice. Dogs in severe pain and shock were afforded remarkable relief and improvement when trimeprazine and meperidine hydrochloride were combined in equal volumes and administered in doses of 1 cc./25 lb. of body weight.

Conclusion

Trimeprazine (Temaril), a phenothiazine derivative, provided effective sedation and tranquilization in dogs. It is also useful in treating pruritus, allergic bronchitis, coughing, and vomiting in dogs and cats.

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Special Capsules Permit Precision Research on Gastrointestinal Tract

Special capsules can be fed to dogs to permit an investigator to release a drug at any specified point in the digestive tract.

To activate the capsule, the dog with the ingested capsule is placed in the field of a radio-frequency generator. The heat produced by the radio waves causes sealing wax on the capsule to melt, freeing a pusher and spring inside, which then injects the drug into the gastrointestinal tract.—*Drug Trade News* (March 20, 1960): 50.

Mobilization of the Nation's Health Resources

John M. Whitney, M.D.

CIVIL DEFENSE is as necessary for the survival of our country as is military defense for, if a nation is to be secure, it must establish protective measures against all eventualities and for all segments of the population.

Establishment of defense at this stage in history is one of the most critical problems facing the nation. The threat of nuclear warfare with its capability for mass destruction of unparalleled magnitude is ever-existent. Additional possibilities of horrendous perpetration of disaster are inherent in the developments in bacteriologic and chemical warfare.

The Public Health Service, specifically the Division of Health Mobilization, is concerned with all aspects of modern-day warfare as they affect the health and medical care of the civilian population and the pre-attack preparations that must be made. Under assignment by the Office of Civil and Defense Mobilization, the Public Health Service is charged with the responsibility for developing and instituting plans and operations to build civilian readiness to meet disaster and to accomplish basic survival in the wake of disaster.

Survival of this country following all-out attack would depend upon its ability to reconstitute its social, environmental, industrial, and governmental structures. Basic to all recovery would be the health of the surviving population. Thus, here is the critical area of concern.

The saving of lives depends upon many factors, no one of which can be considered singly or can tip the scale alone, except on rare occasions. Certainly, when one thinks in terms of treating casualties numbering in the millions, it is obvious that total health resources are involved, including

the manpower for providing medical and nursing care; supplies of drugs and other material; hospital facilities, equipment, and personnel.

In broadest terms, then, emergency health resources are the triad—manpower, material, and facilities—required to prevent the impairment, and to improve and restore the physical and mental health conditions, of the civilian population. Critical to health considerations, and incorporated within the triad, are elements essential to everyday living, such as safe water and food supplies; adequate shelter, waste disposal; prevention or control of communicable diseases, or both.

The National Health Plan, issued in December, 1959, as Annex 18 to the National Plan for Civil and Defense Mobilization, provides the general guidelines under which the Health Mobilization program operates and delineates responsibilities and functions integral to emergency performances.

Health Services are defined as medical and dental care in all of their specialties and adjunct therapeutic fields; the planning, provision, and operation of first-aid and emergency medical care stations, hospitals, and clinics; preventive health services including detection, identification, and control of communicable diseases, their vectors, and other public health hazards; inspection and control of purity of foods, drugs, and biological products; food and milk sanitation; public water supplies; sewage and other waste disposal; registration and disposal of the dead; prevention and alleviation of water pollution; vital statistics services; preventive and curative care related to human exposure to radiologic, chemical, and biological warfare agents; and rehabilitation and related services for disabled survivors.

The National Health Plan defines health manpower as: physicians, veterinarians, dentists, sanitary engineers, and reg-

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istered nurses. Personnel from each of these health professions are responsible for actively participating in civil defense mobilization planning and training in his community. The national associations of these health professions, including the American Veterinary Medical Association, are named as having responsibility to advise the Office of Civil and Defense Mobilization and the Department of Health, Education and Welfare in organization and planning, training education, research, and other functions pertinent to each association. The respective organizations further are encouraged to establish committees for this task.

State and local societies of professional health organizations enter the National Health Plan also. Although each state and local health department carries the primary and statutory health role at its respective level, assistance to state and local governmental agencies in the preparation and execution of civil defense health plans from all professional health organizations is necessary to adequate health preparedness.

It is recognized by the Office of Civil Defense Mobilization and the Public Health Service that provident utilization of professional manpower is the crux of any emergency health plan. Much of our surveying, planning, and operations are devoted to assuring that all health personnel are fully utilized. A primary goal of the health mobilization program is to train the health manpower professions in the rudiments of disaster preparation and activity. The Division of Health Mobilization conducted 4 courses last year and will conduct 3 before July 1, 1961. Subsequent courses will depend upon the action of Congress in making funds available for the next fiscal year.

Some of the subjects taught in these week-long sessions are: medical self-help, medical care by allied medical personnel; radiologic, biological, and chemical warfare defense; mass casualty care; epidemiology in disaster; disaster sanitation; and community health services. Students also participate in a field exercise in emergency water treatment and witness a civil defense emergency hospital uncrated and set up operation within minutes after the "go-ahead" signal.

It is hoped that those who attend these courses will take back to their communities

some of the knowledge they gain and the enthusiasm engendered, for the Public Health Service sees in them valuable instruments of assistance to the national defense effort. For its part, the Public Health Service will continue to provide additional materials, advice, and assistance to those who participate in the courses.

I would like to describe for you some of the premises on which the health mobilization program is based and some of the assumptions guiding establishment of national emergency planning.

From the combination of experiences in the annual Operation Alerts, World War II, and Korea; research by private and governmental agencies; and meticulous and specialized studies by both military and civilian experts; we have been able to piece together a projected attack pattern covering all areas of expected exigencies.

Probable Conditions After Thermonuclear Attack

In case of all-out attack on the United States by thermonuclear weapons, we can anticipate the following:

1) *The Health Manpower Situation.*—Number of expected survivors: 135 million. Of these, approximately 120 million would be uninjured; 15 million, injured in varying degrees. Number of physicians surviving: some 160,000. This number is expected to diminish to approximately 140,000 by 60 days postattack due to delayed radiation sickness and loss from other diseases and injuries. Twenty-seven thousand public health personnel would be alive immediately postattack, with further additional loss of 2,000 expected.

2) *The Health Facilities Situation.*—Hospital loss would be heavy during attack; use of many hospitals denied because of fallout. Nationally, about 800,000 civilian hospital beds are available, counting those in prepositioned civil defense emergency hospitals. Due to radiation decay, 285,000 additional beds should be available 60 days postattack, thus reducing the number of competitors for each bed.

3) *The Health Supply Situation.*—Actual amounts of water available for human consumption and for sanitary purposes is difficult to estimate. In general, there would be about a 60% pumping capacity in at-

tacked areas. However, lack of power combined with the presence of fallout would reduce this 60% to usable capacity of approximately 10%. An increase to 25% can be expected 60 days post attack. Roughly, 42 million people will thus require emergency water following attack. Two months later we can anticipate emergency supplies will still be necessary for 29 million people.

There would be some loss of federally stockpiled medical equipment and supplies, but severe losses would be felt in producers' plants, wholesale and retail warehouses, and distribution points. Remaining supplies would be difficult to distribute due to fallout and limited transportation. Production capacity for health items would be limited and spotty and of considerable concern. For example, unless full production capacity could be restored, there would be insufficient chlorine for water and sewage treatment. Repair and construction of new water and sewage systems would be hindered by limited supplies of pipe and chlorinators. Production of certain essential medical treatment items would be low for some supplies (pencillin, hypodermic needles) and virtually nonexistent for others (broad-spectrum antibiotics and gauze pads).

There would be extensive loss of housing, transportation, and communication, and large numbers of people would be displaced. Organized medical operations could be established only in those areas not subjected to the direct or indirect effects of nuclear weapons—the so-called "islands of survival." With the dissipation of radioactivity, other areas would be able to organize medical care programs and institute emergency public health control measures.

In summary, this would be the post-attack situation.

- 1) The supply of physicians would be insufficient and would remain so, even if one counted each veterinarian, dentist, and nurse as equivalent to a physician.

- 2) The number of available hospital beds would be grossly inadequate. Even with limited professional manpower, there would be a capability for effective use of several times the remaining number of hospital beds.

- 3) Medical supplies and equipment would be grossly inadequate and poorly distributed and would limit the extent to which hospital bed shortages could be corrected by improvisation.

Civil Defense Preparation Needed Now

In a few words, one can identify the primary job that would face the nation: to protect and restore the health of the surviving population and to create an environment which would permit rebuilding processes to take place.

Thus, one can readily determine many actions which must be taken right now to improve our capacity to withstand such an assault and meet the health needs of the surviving population. Although we here are primarily interested in the role of the professional health workers, the importance and direct relationship of fallout shelters, early warning systems, active defense, transportation, and food and clothing to the medical care problem cannot be ignored. Just as a safety engineer does not look upon improved methods of surgery for the answers to his problems, civil defense cannot expect the best possible medical program to substitute for a lack of fallout shelters and other protective mechanisms. Every preparedness activity in this field would have an effect, directly or indirectly, upon the health of the people.

The immediacy and magnitude of the medical care and public health requirements would be the basic problems created by any attack situation.

One can foresee, almost instantaneously, millions of casualties in need of treatment. Not only would there be a gross disparity between the available health resources—manpower, supplies, and facilities—and the medical patient load, but also a corresponding disparity in all the supporting services—transportation, fire and rescue, and communications. The radiologic fallout in many areas would delay or prevent any organized medical activity for days or weeks. In short, we must anticipate inadequate numbers of health professionals and amounts of supplies, equipment, and facilities; a lack of ability to logistically relate even these limited resources to the patients; and an inability to put into operation organized medical programs in most areas for extended periods of time due to radioactive fallout.

On these bases, our directions are implicit.

We must teach people how to treat themselves—to meet their own health needs—until local conditions permit them to receive medical care. Presently, we are at about midpoint in what we call our self-

help research project. Investigations have been conducted in many areas germane to basic survival, including medical self-aid, nursing care, hygiene and sanitation, food and water, and confined existence. A manual is being developed which will delineate standardized self-help procedures to be followed in the event of disaster, and a training course will be built on these principles.

In addition to general medical and nursing care, the layman is able to learn simple methods of treating shock, burns, fractures, and hemorrhages and other techniques by which he can preserve life.

We must foster training in disaster medicine for doctors of medicine and of veterinary medicine in preparation for a time when only the most austere conditions would exist; when facilities, equipment, and assisting personnel would be either limited or virtually nonexistent.

Members of the allied medical professions also must have special training. Veterinarians and dentists must become proficient in the practice of disaster veterinary medicine and disaster dentistry, respectively. They, and nurses, must learn how to take effective lifesaving and first-aid measures and how to assist the medical profession by performing approved additional functions.

Training in lifesaving and first-aid measures must be extended to technicians, technologists, occupational and physical therapists, optometrists and podiatrists, along with other approved functions whereby they can assist members of the health professions.

Hospital administrators, pharmacists, and medical librarians must be trained to perform their normal functions under the difficulties inherent in casualty and disaster conditions, including field operations.

In short, we must make every effort to assure maximum utilization of every possible health manpower resource, including the layman who, if he is pretrained, might save his own or his neighbor's life in an emergency.

Training in the establishment and utilization of emergency hospital facilities plays a major part in health mobilization programming. The Office of Civil and Defense Mobilization has nearly 2,000, 200-bed emergency hospitals, almost all of which are pre-positioned in carefully selected localities throughout the country.

Other units are available for pre-positioning under qualification, and on loan for training purposes.

These hospitals are designed for use in an existing structure such as a school, auditorium, or warehouse. They contain complete operational equipment, and facilities, including ward units, operating rooms, laboratories, x-ray units, central supply, and an administration unit.

In the area of health resources are many subjects of major concern. All of us realize the importance water would play in survival. Much work, study, and planning are necessary to devise emergency water sources, decontamination methods, and methods, which do not require large amounts of water, for taking care of the sick and injured. Water systems to operate postattack are being evaluated and requirements estimated for rehabilitation of those systems that would probably be damaged or destroyed. As a 1st step in the development of a national water plan, a prototype community emergency water supply program is being developed.

Calculation of requirements for medical and sanitation supplies and equipment occupies another major portion of health mobilization efforts. Once requirements are determined for the various items, available supplies are evaluated in accordance with expected damages, calculated loss of mobility, and projected capabilities for utilization. Results indicate the postattack discrepancies that can be anticipated between supplies and requirements. Determination can then be made of procedures necessary to overcome disparities, such as stockpiling and inventory control.

Preparation for meeting the emergency health needs of the nation obviously requires extensive, concentrated activity by every individual and every organization concerned with the welfare of the nation. In accord with the National Health Plan, the Public Health Service, acting within the framework of its role in civil and defense mobilization, welcomes the counsel and advice of the American Veterinary Medical Association and the active participation of its membership in building optimum national health defense.

The American Medical Association in a report on National Emergency Medical Care, prepared at the request of the Office of Civil and Defense Mobilization, has listed the additional functions recom-

mended to be performed under mass casualty conditions by persons other than physicians. This list for doctors of veterinary medicine is comprised of the following:

- 1) First aid, including but not limited to artificial respiration, emergency treatment of open chest wounds, relief of pain, treatment of shock, and preparation of casualties for movement.
- 2) Control of hemorrhage.
- 3) Attainment and maintenance of patent airway and intratracheal catheterization, including tracheotomy.
- 4) Proper and adequate cleansing and treatment of wounds.
- 5) Bandaging and splinting.
- 6) Administration of anesthetics under medical supervision.

- 7) Assisting in surgical procedures.
- 8) Insertion of nasogastric tubes, including lavage and gavage.
- 9) Administration of whole blood and intravenous solutions, as directed.
- 10) Administration of parenteral medications, as directed.
- 11) Catheterization of men and women.
- 12) Administration of immunizing agents, as directed.
- 13) Sanitation, including waste disposal; examination of water sources, methods of water treatment, and distribution; milk sources; methods of sterilization and distribution; and inspection of foods, including detection of radioactive contamination.

Meeting the Challenge of the Future

The AVMA is working with appropriate persons and agencies in the projection of future trends so as to be ready to guide these trends as much as possible and be in a position to react advantageously to the changes that inevitably will develop.

We have authorized funds to start a prospectus of veterinary medicine. It is to be perhaps a 2-year program costing a quarter of a million dollars, maybe even more. It will be the first real inventory veterinary medicine has taken of itself. We will expect the prospectus to answer questions such as: What will be the character of the agricultural economy in 5, 10, or 20 years? What will be the best opportunities for veterinarians in this economy? Where can we best serve? What will be the highest use of skill? Similar questions will apply to pet practice.

We will want to know if the city complex of the future will be of such construction that clinic practice will be practicable or whether the need for more detailed and more complicated veterinary procedures will make it advisable to practice from central veterinary hospitals. Some veterinarians feel that the limitations of clinic facilities put a ceiling on their capacity because they can treat only those patients that can be left unattended at night or sent home. On the other hand, clients insist on convenience. Which is the better plan?

The prospectus will cover all phases of veterinary medicine and should serve as an excellent basis for future planning.—*Jack O. Knowles, V.M.D., Miami, Fla., Chairman of the AVMA Executive Board, at Alabama State Meeting, March 19-21, 1961, Montgomery, Ala.*

Modified Microgel Diffusion Method for Study of Duck Hepatitis Virus

A simple method for carrying out a microgel-diffusion test was developed. The test utilized 1% agar placed on microscope slides. Cups were cut 4 mm. apart in the agar with a cork borer. Satisfactory lines of precipitation were demonstrated with duck hepatitis virus-infected tissue and immune duck and rabbit antiserum. Visible reactions occurred in 4 to 24 hours at room temperature and could be readily observed in indirect light. When immune duck serum

and duck hepatitis antigen were used, only a single line of precipitation was observed. However, hyperimmune rabbit serum caused the formation of 3 lines of precipitation. Prior adsorption of the rabbit serum with a normal duck liver suspension eliminated the line closest to the serum cup.—[D. K. Murty and L. E. Hanson: *A Modified Microgel Diffusion Method and Its Application in the Study of the Virus of Duck Hepatitis*. *Am. J. Vet. Res.*, 22, (March, 1961): 274-278.]

Electrocardiography and Phonocardiography of Lambs

The objective of this study consisted of determining the normal electro- and phonocardiographic patterns in 92 lambs 1 to 4 weeks of age. Electrocardiographically, it was found that the P-R, QRS, and QT intervals increased progressively with age, and heart rates decreased. All electrocardiographic leads (bipolar, unipolar, and thorax) were recorded without using sedatives or tranquilizers. Phonocardiographically, it was observed that the duration of the heart

sounds and number of vibrations of each heart sound increased with age. Insofar as is known, this represents the 1st study reporting the electrocardiographic recording of unipolar and thorax leads and also makes the 1st time that phonocardiograms have been recorded in the young lamb.—[M. I. Hilmy, N. H. Booth, and H. V. Unfug: *Electrocardiographic and Phonocardiographic Patterns of Normal Lambs*. *Am. J. Vet. Res.*, 21, (Nov., 1960): 1001-1005.]

Survival of Foot-and-Mouth Disease Virus in Meat

Tissue samples for virus detection tests were taken from steers during various stages of infection with foot-and-mouth disease (FMD). Infective virus was demonstrated in the following: (1) a prescapular lymph node, which had been removed from a steer by surgery before clinical signs of disease appeared; (2) lymph nodes, but not in muscle samples or bone marrow, from a steer that had been slaughtered 5 days after regression of disease signs; (3) hemal nodes from both freshly killed and ripened carcasses; (4) bone marrow from ribs and vertebrae of an

infected carcass that had been stored 194 days at 1 C., but not in lymph nodes stored in contact with ripened and salted meat in wooden barrels under the same conditions. Swine contracted FMD when fed infected bone marrow mixed with bone fragments but not when the same bone marrow was fed alone.—[B. F. Cox, G. E. Cottral, and D. E. Baldwin: *Further Studies on the Survival of Foot-and-Mouth Disease Virus in Meat*. *Am. J. Vet. Res.*, 22, (March, 1961): 224-226.]

New Books

Rickettsial Diseases

In this translation of the second edition, published in 1956, the foremost Soviet authorities on the rickettsioses have drawn upon their own extensive experience in reviewing the world literature. Emphasis in the text has naturally been placed on rickettsial agents of concern in USSR, particularly acarine-borne human infections, but adequate comparison is provided with related world-wide agents, their animal hosts and vectors.

Nine chapters in the General Section review basic information on modern microbiology, etiologic and systematic relationships, and laboratory methodology which are of universal application. Understandably, references to Soviet work on a given facet, such as rickettsial toxins, receive prominence, but there is extensive acknowledgment of foreign work up to 1956 when originally published in Russian.

The 16 chapters in the Special Section provide detailed discussion of specific rickettsioses and annectant features of epide-

miology, diagnosis, treatment, and prevention, with abundant data from the authors' own comprehensive research.

As the authors surmise, there will be areas of disagreement among some other rickettsiologists, but the book should prove to be a useful reference text, not the least feature of which is the extensive, translated section of the Russian literature by rickettsial headings. Unfortunately, much of the pagination is omitted, complicating citation. For the veterinarian, interest will lie chiefly in zoonotic complexes, in the section on Q fever, and the extensive discussion of the pathogenesis of agents of diseases of man in laboratory animals. The natural animal rickettsioses, chiefly African, are briefly included only for completeness in introductory systematization.—[*The Rickettsial Diseases*. By P. F. Zdrovski and H. M. Golinevitch. (Translated from the Russian by B. Haigh.) 640 pages; illustrated. Pergamon Press, 122 E. 55 St., New York, N.Y. 1960. Price \$17.50.]—CORNELIUS B. PHILIP.

Introduction to Parasitology

The tenth edition of "Introduction to Parasitology" is a monument to a well-written, readable, and popular textbook. Through the 10 editions, this book has kept pace with the advancements in parasitology and the enormous amount of research.

The first edition in 1918 was prepared by the senior author to acquaint a wide range of intellectually curious readers with the important facts of parasitology and the vital importance of parasites to health. Although it was not widely accepted by the general public, the book was adopted as a popular text for introductory courses in both academic and medical schools.

The new edition, as in former ones, is divided into 3 component parts: Part I, Protozoa; Part II, Helminths; Part III, Arthropods. Many of the sections in each part have been rewritten and revised to make the book new and up-to-date. A number of the illustrations have been redrawn and many new ones have been added. Each part gives a full account of the important human para-

sites, their life cycles, medical importance, and the underlying principles of treatment and prevention. The parasites of veterinary importance are included in each section, and their relation to public health is discussed. At the end of each chapter is a list of references to further aid the student in additional reading.

For 42 years this has been a popular textbook and needs no introduction to teachers and students. It can be of great value to veterinary and medical practitioners who will find in its readable, interesting style a quick review of parasites with their life cycles, and a ready reference to prepare talks for groups of the public who are interested in the latest developments in both human and animal parasites. — [Introduction to Parasitology. By Asa C. Chandler and Clark P. Reed. 10th ed. 822 pages; illustrated. John Wiley and Sons, Inc., 440 Fourth Ave., New York, N.Y. 1961. Price \$9.75.] — F. R. KOUTZ.

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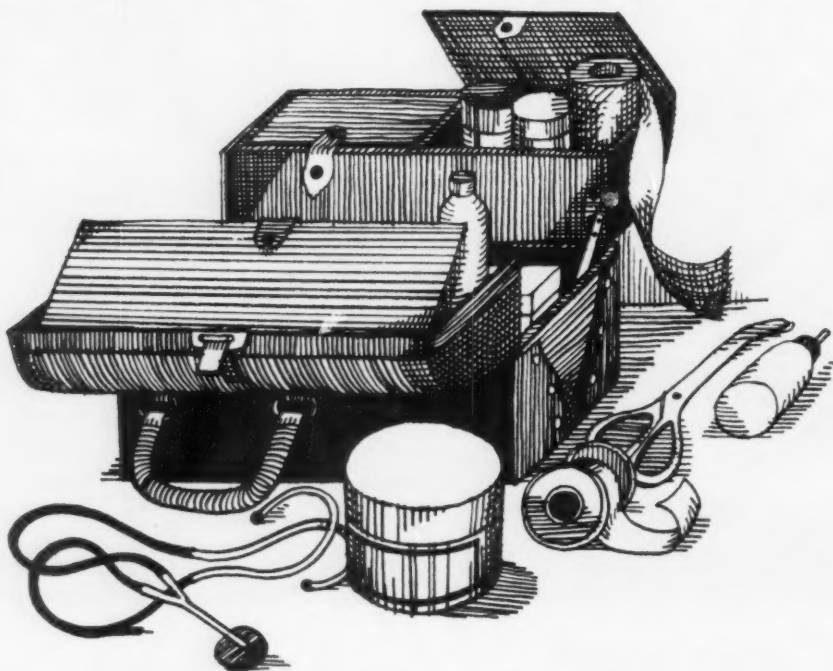
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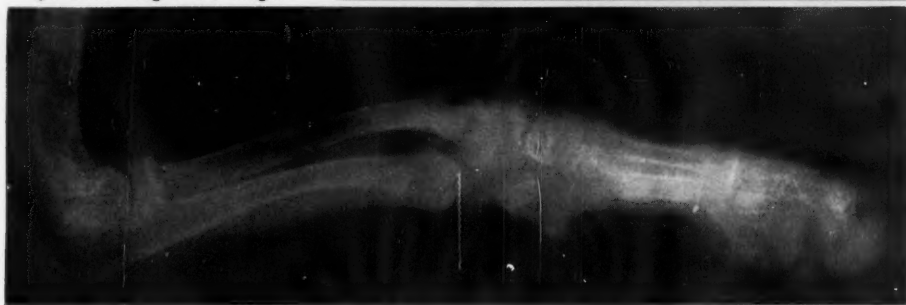
WHAT IS YOUR *Diagnosis?*

Make your diagnosis from the pictures below—then turn the page▶

Fig. 1—Ventrodorsal radiograph of the pelvis and hind-legs of a dingo.



Fig. 2—Medial radiograph of the front leg of the dingo.



History.—A male dingo (wild dog of Australia), 5 months old, walked reluctantly and with some difficulty for 6 weeks. For the next 3 weeks he walked with increased reluctance and the hindlegs appeared deformed. Because the dingo could not be handled readily, he had never been thoroughly examined. He was anesthetized and radiographed (fig. 1 and 2).

Here Is the Diagnosis

(Continued from preceding page)

Diagnosis.—Juvenile osteoporosis (osteogenesis imperfecta) with multiple fractures of some long bones and narrowing, distortion, and fractures of the pelvis.



Fig. 3—Ventrrodorsal radiograph of the pelvis and hindleg of a dingo. Notice the various fractures a, b, c and the narrowing and distortion of the pelvis, d.

Comment.—On the radiographs (fig. 3 and 4), all bones appear demineralized (osteoporotic), and some of the long bones are fractured and displaced. There is little or no evidence of rickets.

Juvenile osteoporosis (osteogenesis imperfecta) may occur in young feline and canine animals that are fed diets low in calcium. Because meat is the chief ingredient in the diet of carnivores in zoos, it is often difficult to get these animals to eat enough calcium-rich substances such as bone, milk, mineral mixtures, and oyster shells. Once they reach maturity, however, the calcium requirements are lowered considerably, and the problem of calcium deficiency is solved. Negative calcium balance may be a contributing factor to the low incidence of reproduction in some zoo cats.

In their natural habitat, the high concentration of calcium required is probably supplied by small rodents, a favorite food of many wild animals. When these rodents are eaten, the entire carcass is consumed, including hide, hair, bones, intestines, intestinal contents, and the organs. Since most rodents feed on grain and grass, their intestinal contents, in addition to their bones, serve as an abundant source of minerals, especially calcium.

This report was submitted by James F. Wright, V.M.D., Washington, D.C., and prepared with the assistance of Wayne H. Riser, D.V.M., M.S., Kensington, Md.

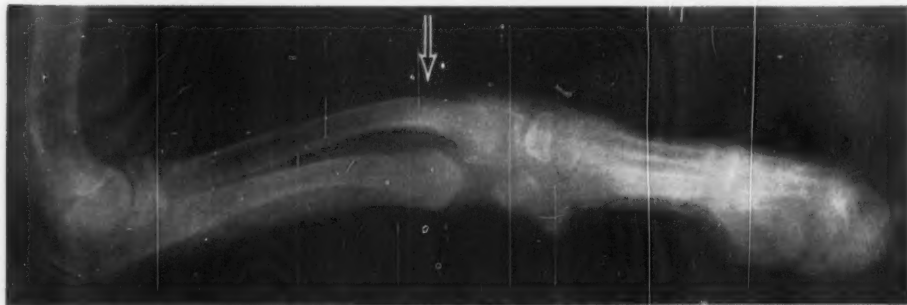
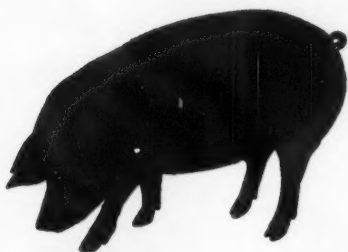


Fig. 4—Medial radiograph of the foreleg of a dingo. Notice the folding fracture at the distal area of the radius (arrow).



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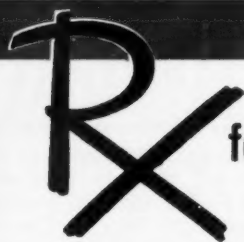
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Integral Public Relations Is Theme of AVMA Round Table

How can concerted efforts by all segments of the American Veterinary Medical Association—from the individual member to the national office—dispel the widespread public ignorance concerning the dimensions of veterinary medicine and its value to society?

This was the major question which occupied the 37 participants in the AVMA's Public Relations Round Table, held in Chicago May 20-21. Strategy and tactics of veterinary public relations were discussed by representatives of 25 state veterinary medical associations and 2 Canadian provinces, Association staff members, and officers.

Leading off the program with a review of the AVMA's public relation program, Heinz R. Kuehn, AVMA director of public information, emphasized that any veterinary public relations program is founded upon 2 basic requirements: communication and responsible participation. "Communication and participation go hand in hand," he said. "Unless veterinarians participate in the affairs of society, unless they become aware of their responsibility toward the common goal and the common good, I cannot communicate with the general public because I have very little to report. On the other hand, unless I inform the public about the veterinary profession, and unless you in your states and communities do likewise, our efforts to participate in community, state, and national affairs will be largely wasted because good performance plus pub-

lic understanding and appreciation of that performance equals good public relations."

Unification of State and National PR Programs

Requirements and techniques of a state veterinary public relations program was the topic of a highly animated Round Table debate on Saturday, May 20. The discussion was moderated by Claude Ramsey, executive secretary of the Colorado V.M.A. and public relations counselor of the association. Questions submitted to the moderator prior to the discussion showed a wide range of public relations problems confronting state associations.

The general tenor of this discussion was probably best summed up by Mr. Ray Thomson, public relations counselor to the Maryland and Pennsylvania V.M.A.'s. He said, "How much attention should be given to closer integration of state and national programs? We fear that there are so many divergent programs—national, regional, state, local—that perhaps all of us are going down a different road. Sooner or later, we will find that we have not carried on good public relations at all, but that we have put ourselves into a box from which it will be difficult to escape. Thus, there must be some effort toward a more "integrated" public relations program throughout the nation."

Dr. S. R. Monroe, public relations chairman of the Alabama V.M.A., re-emphasized this thought by calling for an "over-all national public relations program whose objectives, set down in writing, are designed to be carried out on the state level, but which is coordinated by the national AVMA headquarters."

Centennial Main Target

The coordination of veterinary public relations continued to occupy the Round Table participants on Sunday, May 21. Mr. Kuehn first spoke about "Main Targets for a National Veterinary Public Relations Program," a theme which was carried through a subsequent Round Table discussion on "Integral Public Relations for a Professional Association," moderated by Dr. S. R. Monroe.

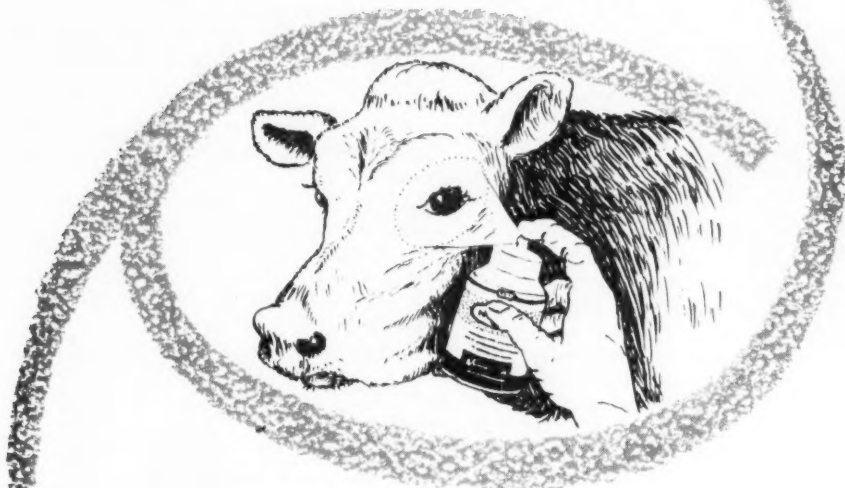
In Kuehn's view, the prime target of veterinary public relations for the next

Continued on page 138

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PR Page—Continued from page 136

2 years is the Centennial of the American Veterinary Medical Association "because," he said, "centennial activities are in essence public relations programs. The main objectives of the profession's centennial celebration are consequently public relations or, if you will, public information objectives, consistent with the high standards and aims of the profession." He pointed out that these objectives can be achieved with participation by the entire membership—individual, local, state, and national, under the leadership of the AVMA.

Mr. Kuehn described the centennial activities that were being planned by the AVMA's Centennial Committee, and indicated that the AVMA office would make available a centennial kit containing material designed to guide state and local associations in their centennial activities.

AVMA Program "Large and Dynamic"

Throughout the discussions, Round Table participants expressed a strong feeling that increased AVMA leadership and support was mandatory in an integral veterinary public relations program. Acknowledging and appraising this conviction, Dr. Mark L. Morris, AVMA's president-elect, pointed out that "many of the problems that you have been discussing here in the past 2 days have been on the agenda of the AVMA's Board of Governors and have been under careful scrutiny and inspection."

"In the few months that I have had the privilege of serving on this Board," he continued, "it has become apparent to me that the American Veterinary Medical Association has a very large show on the road. I want to tell you, so that you can go back home and tell your members, that there is much being done for the member of the American Veterinary Medical Association."

Dr. Morris then briefly told of his and the AVMA's Board of Governors' experience in dealing with government officials and leaders of allied health professions. "I have been agreeably surprised and pleased to see the stature that has been built for this office," he said. "If nothing else, the member of the AVMA is being given a cloak of respectability that he can get in no other way." "You are tied in," he emphasized, "to a large and dynamic program."

Moving to the present problems and needs of the profession, Dr. Morris explained that the AVMA needs to increase both qualified personnel and funds to provide the leadership which the membership demands.

"Money and brains," he asserted, "can take the veterinary profession and really push it forward in the years that are right ahead."

The Outside View of Veterinary PR

An outside view of the profession's status and opportunities was provided by 2 prominent representatives of the communications field. Theodore R. Van Dellen, M.D., president of the Chicago Medical Society and health editor of the Chicago Tribune-New York News Syndicate, spoke about "Science in the News" and described the advantages and pitfalls of writing a daily health column. He also appraised the value of news releases prepared by public relations men, and suggested how releases should be prepared to increase their chances of publication.

Mr. Fahey Flynn, radio and television newscaster and commentator, related the inside story of "electronic journalism," elaborating in detail on the main requirements for an effective relationship between the broadcasting industry and public relations men.



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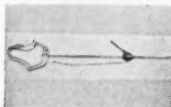
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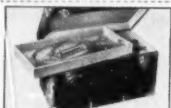
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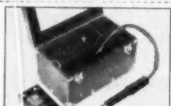
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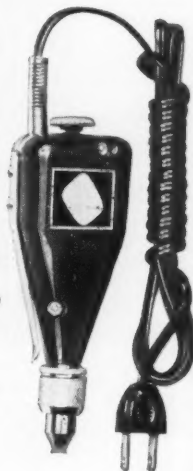


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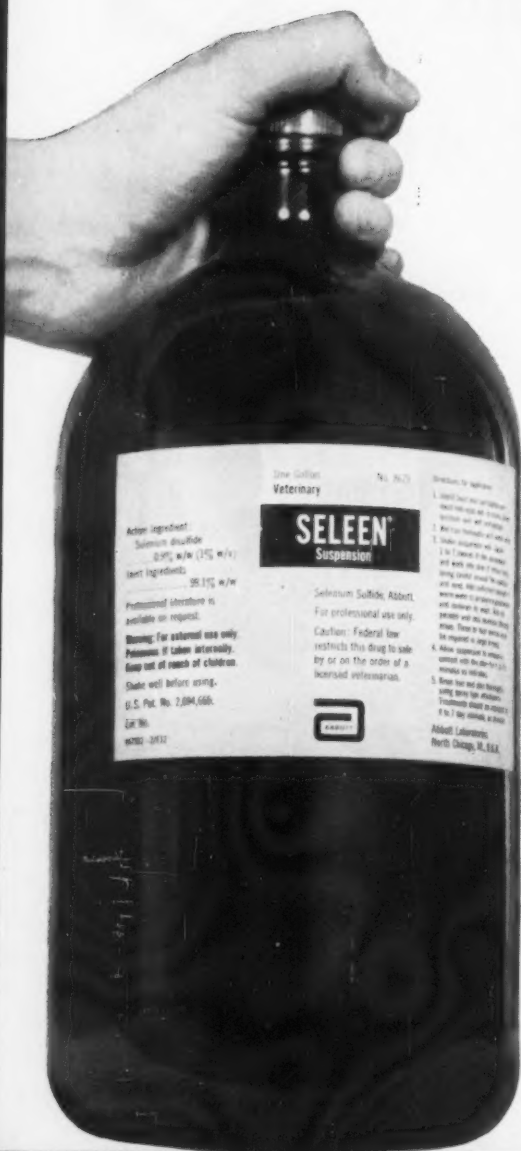
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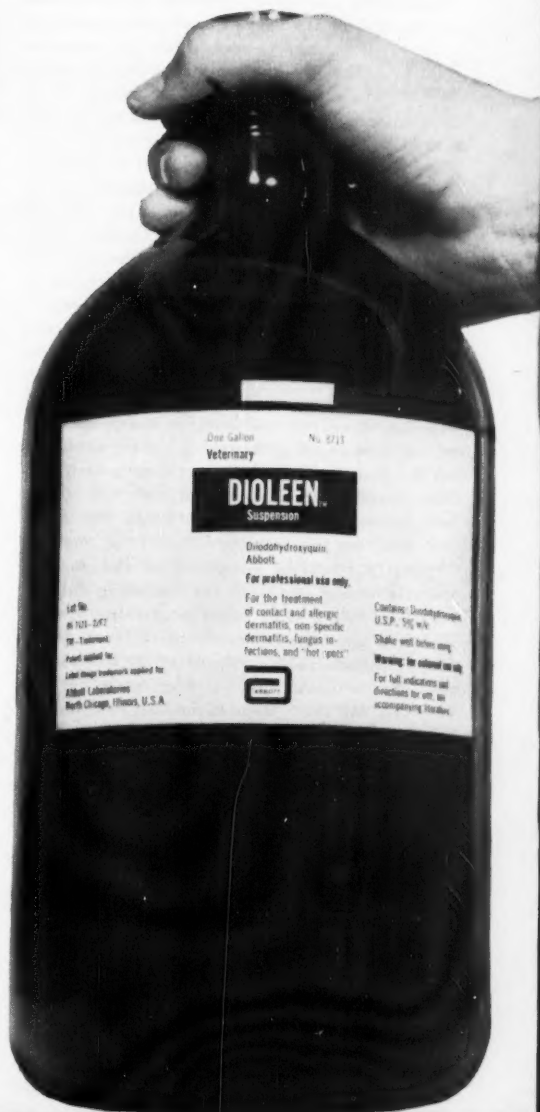
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History of the AVMA

GOLDEN JUBILEE

1913 The 50th anniversary meeting in 1913, held in New York City, was to have been graced by the presence of its honorary president, Alexandre Liautard who, since 1900, had been living in France. Illness of his wife, however, prevented Dr. Liautard, the only living founder of the Association, from attending. In his address, read at his request by his former partner, R. W. Ellis, Dr. Liautard recounts the early days of the Association and noted that with the change of name: "Her history is but the continuation of her former life, and her membership is larger than that of any other similar body in the world. Her word is known, recognized, and appreciated in every scientific veterinary center, for she will forever remain the solid representative of our profession in the new world. She has stretched her roots in every specialty of our branch of medicine . . . everywhere the AVMA finds many of her worthy members . . . The Association has proved and will always remain true to her original motto, *Non Nobis Solum*—"Not for us Alone."

John R. Mohler, president of the Association, in doing honor to the founding fathers, recalled: "At a time when everything seemed in an irrevocable turmoil, there were found some indomitable veterinarians sufficiently resolute to brave the existing storm. It was reserved for these men to be the first to conceive in wisdom and establish in strength an association qualified to meet successfully the purpose of the founders and to serve triumphantly as one of the pioneers of veterinary societies."

Dr. Mohler dwelled at length on the achievements of the veterinary profession, noting, "The acquirement of knowledge in the domain of animal diseases during the last five decades has been constant and amazing and compares favorably with the progress in other branches of science which have attracted the admiration of the world. As chemistry and physics have advanced from alchemy, and astronomy from astrology, so has veterinary medicine progressed from empiricism and become scientific."

Several changes in the structure and operation of the Association were discussed following recommendations of the committee on reorganization, with D. E. Salmon as chairman

and James Law, D. M. Campbell, George H. Hart, and C. J. Marshall as members. The most sweeping change called for creation of a House of Delegates which ". . . should represent the delegated power of the members of the AVMA and be the national representative body of the constituent Associations. It should elect the general officers of the Association and a board of nine trustees, and should transact all the general business of the Association." This, however, failed to be adopted; another two decades were to pass before the present House of Representatives became a reality.

In offering a dissenting opinion to the majority report of the committee on reorganization, D. M. Campbell proposed that nominations for elected offices be made by the membership at large via a mailed form; the Executive Board would tally the votes and place in nomination for each office the names of the two men from each of five districts who had received the greatest number of votes, whereupon the entire membership would be eligible to vote via mail ballot. Dr. Campbell perhaps objected less to the majority recommendation on this point than to the current method of nomination by the past presidents. This, he felt, was lacking in democratic principle inasmuch as a small group of men (who, in effect, determined the makeup of the committee) would wield power for long periods. As a matter of passing interest, under this arrangement, W. L. Williams could have been a member of the nominating committee for 52 years, Tait Butler and G. H. Glover for 40 years.

Dr. Campbell's plan, however, might have created some difficulties since it would have been possible for one man to be nominated for several offices. He did win a partial victory when the nominating committee was dropped and the previous plan of nominations from the floor reinstituted. The Executive Board continued as an appointive body.

Dr. H. S. Murphey called for action ". . . to provide for an outline of the history of veterinary progress in this country during the past 50 years." As a result, the first Committee on History was appointed, with D. Arthur Hughes, chairman, and H. S. Murphey, Tait Butler, W. L. Williams, and F. H. Osgood as members.

Of special interest is the number of men still living today who participated in the pro-

gram: these include J. V. Lacroix who presented a paper on abdominal wounds; H. D. Bergman, one on therapeutics; H. E. Kingman, Sr., on anesthesia; K. F. Meyer, on paratuberculosis; and B. A. Beach, on chickenpox. Others present at the meeting included R. S. MacKallar, Sr. and Jr., Evan Stubbs, H. L. Gilman, E. C. Deubler, J. E. Weinman, J. P. Hutton, and Jacob Traum.

Reports on the Kansas horse plague [encephalomyelitis] of 1912 were presented by A. T. Kinsley and B. F. Kaupp; dourine and glanders by J. R. Mohler, Adolph Eichhorn, and B. T. Woodward; tuberculosis by C. M. Haring, S. H. Gilliland, and C. J. Marshall; Texas fever by John Kiernan and G. R. White; colics by L. A. Merillat; mastitis by L. A. Klein; and infectious abortion by W. L. Williams, J. N. Frost, W. E. Cotton, K. F. Meyer, and E. C. Schroeder. Various aspects of therapeutics were presented by P. A. Fish, H. Jensen, and R. A. Archibald. The scope of abdominal surgery was discussed by Frederick Hobday of England and by J. H. Blattenberg. Other surgical reports included roaring, by L. A. and E. Merillat; lameness, by John W. Adams and Joseph Hughes; and firing, by George B. McKillip. Other notables on the program included Cassius Way, L. Enos Day, Carl W. Gay, and J. F. DeVine. SESCO Stewart, president of the Association of Veterinary Faculties and Examining Boards, addressed that body on the need for a standard examination for licensure. Few programs, perhaps, have included so liberal a representation of notable men—or of those who were about to make their mark in the veterinary profession.

C. J. Marshall was elevated from secretary to president, and Nelson S. Mayo was elected secretary. G. R. White was re-elected treasurer.

The Association at the Half Century

Dr. Mohler's address at the 50th anniversary meeting stands in stark contrast to that by R. S. Huidekoper at the quarter-century mark. In reviewing the accomplishments of 25 years, Dr. Huidekoper had observed, "The meetings were always pleasant affairs socially . . . and we learned to know each other and to fill the want of professional friendship which is felt by many who stand alone in new localities. Some meetings were replete with papers . . . other meetings, and there were unfortunately many of them, have been devoid of any public interest."

In 1888, the Association numbered 207 members, of whom 42 attended the meeting—one more than in 1863. Dr. Liautard had charged: "The meeting of 1888 was remark-

able for its quietness, its somnolence—in fact the torpid condition which seemed to prevail. . . ." By comparison: "In 1863 all was activity, movement, discussion, anticipation, and hope." In 1913, the Association numbered some 1,650 members, and some 260 new members were added at the meeting. At this time, there were 31 Honor Roll (25-year) members, of whom 17 were present; four of these, J. C. Meyer (1925), Benjamin McInnes (1926), L. H. Howard (1932), and G. H. Berns (1934), lived to become 50-year members. Alexandre Liautard, although an honorary member since 1900, was the first to complete 50 years of active identification with the Association (1913).

During the first 25 years, the Association had been dominated by a New York-Massachusetts axis; only one meeting was held elsewhere, and 13 of 15 presidents had been from these states. During the second 25 years, only two meetings were held in New York, one in Boston, and 16 of 21 presidents were from other states. Concerning the Association in 1888, D. M. Campbell observed: "It was national in name only. . . . Its importance in veterinary medicine was already on the wane. . . . National leaders . . . thought the Appalachian Mountains were the dividing line between domestic animals and the buffalo." But in 1913, "It was a different veterinary science, a different veterinary art, and a different veterinary service that the AVMA surveyed on its 50th anniversary. . . . It was a very different meeting of the association that President Mohler called to order on Sept. 1, 1913."

If the reports of the state secretaries are an accurate reflection of the status of the veterinary profession at this time, a sample indicates: "California is in a prosperous and very satisfactory condition generally"; and "Colorado has made steady advance." In Connecticut, "Interest in the profession is keen"; in Georgia, "Opportunities for practitioners, very good"; in Maine, "Much has been accomplished"; in Maryland, ". . . our veterinarians look prosperous and happy"; in Mississippi, ". . . veterinary matters are making progress." The profession in Missouri ". . . is in a prosperous and healthful state"; in Nevada, ". . . conditions for practice are growing better"; conditions in New York ". . . have been steadily improving"; in North Dakota, "practice . . . has become quite lucrative"; in Ontario, ". . . practice has been good"; Tennessee ". . . has been marked by continued improvement"; and, in Wyoming, ". . . conditions are the very best that could be expected."

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APPLICATIONS

Applicants Not Members of Constituent Associations

In accordance with paragraph (c) of Section 1, Article I, of the Bylaws, the names of applicants who are not members of constituent associations shall be published in the JOURNAL. Written comments received by the Executive Secretary from any active member regarding the application as published, will be furnished to the Judicial Council for its consideration prior to acceptance of the application.

AHLUWALIA, JAGJIT, S.

Bihar Veterinary College, Patna, Bihar, India
B.V.Sc., Bihar Veterinary College, 1955
Vouchers: A. H. Groth and G. C. Shelton

BALUYUT, N. S.

1809 San Marcelino, Malate, Manila, P.I.
D.V.M., University of Philippines, 1943
Vouchers: J. B. Aranez and E. R. Carlos

DODD, DAVID C.

215 Washington, Pullman, Wash.
B.V.Sc., Sydney University, 1946
Vouchers: James L. Palotay and R. W. Leader

DOGANELI, M. ZEKI

Veterinary College, Iowa State University, Ames, Iowa
D.V.M., Ankara Veterinary Faculty, 1950
Vouchers: I. A. Merchant and M. A. Emmerson

HADEK, ROBERT

706 South Wolcott Ave., Chicago 12, Ill.
D.V.M., Vienna Veterinary School, 1948
Vouchers: Robert Getty and M. Emmerson

LAWSON, DONALD G.

2825 Canterbury Rd., Birmingham 9, Ala.
D.V.M., Alabama Polytechnic Institute, 1955
Vouchers: C. L. Taylor and D. R. Hodgson

SAHU, SUDARSHAN

Orissa College of Veterinary Science and Animal Husbandry, Bhubaneswar, Orissa, India
B.V.Sc., Madras Veterinary College, 1958
Vouchers: A. H. Groth and G. C. Shelton

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(Fees must be submitted with registration form)

AVMA members and their guests	\$ 8.00 each
Wives of AVMA members	\$ 5.00 each
Children	\$ 3.00 each
Nonmembers and guests	\$15.00 each
Alumni Dinner Tickets	\$ 5.00 each

(Alumni Dinners will be held on Tuesday, August 22)

NOTE: Wives and children must be registered only if they will participate in women's, teens, or subteens' programs. Advance registration closes August 1, 1961. Refunds will be made only if request is received prior to August 7, 1961. Hotel reservations must be made by individual.

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August 20-24, Detroit, Michigan

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Complete Address _____

Wife's Name _____

Guest's Name (s) _____ Children's names and ages _____

Number of Alumni Dinner Tickets _____ School _____

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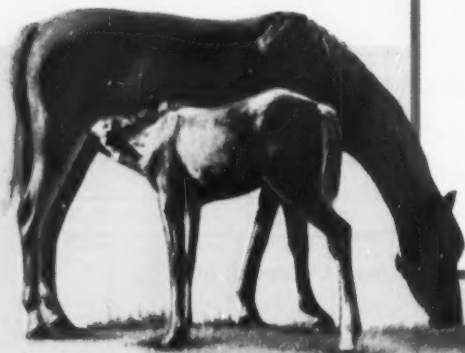
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Vitamin B ₁	18 mg.		Salt	6,626 mg.	(1.46%)
Vitamin B ₂	36 mg.		Iodine	10 mg.	(0.0022%)
Vitamin B ₆	4.54 mg.		Iron	250 mg.	(0.055%)
Vitamin B ₁₂	0.07 mg.		Cobalt	2.5 mg.	(0.00055%)
Calcium Pantothenate	50 mg.		Copper	25 mg.	(0.0055%)
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This is a detailed street map of downtown Detroit, Michigan. The map shows a grid of streets with several key locations marked by numbers 1 through 7. The streets are labeled with names such as Grand River, Washington Blvd., Grand Circle, Madison, Broadway, Center, John, River, Library, Gratiot, Randolph, Monroe, Cadillac Square, Bares, Larned, Jefferson, Atwater, and Detroit River. Other landmarks include Cobo Hall, Ford Auditorium, and the Detroit River. The map is oriented with North at the top.

Numbered locations on the map:

- 1: Bagley
- 2: Cadillac Square
- 3: Fort
- 4: Michigan
- 5: Bagley
- 6: Adams
- 7: Elizabeth

ANNUAL MEETING HOTEL RESERVATION REQUEST

American Veterinary Medical Association

Detroit, Michigan - August 20-24, 1961

INSTRUCTIONS AND INFORMATION

Please give ALL of the information requested below and mail this form to the Detroit Convention and Tourist Bureau. All reservations must be cleared through the Housing Bureau.

Blocs of rooms have been allocated for our use in the hotels which are listed. The Housing Bureau must have the names of all the persons who will occupy each room. No bloc reservations will be made.

Placement will be made in the order received. Your choice of hotels will be followed if rooms are available. Otherwise, assignment will be made to best possible advantage elsewhere. You will receive a confirmation directly from the hotel. (NOTE: All rates are subject to change.) If you desire accommodations in a Detroit hotel not listed or a motel, please so indicate. The Housing Bureau will try to place you there.

FAMILY PLAN — The hotels listed offer a "family plan" whereby children under 14 years of age will be accommodated in the same room with their parents at no extra charge. If more than one room is required to accommodate children, the hotel will charge only the single rate for each additional room.

ANNUAL MEETING HOTELS

Hotel	Singles	For Two Persons		Suites	
		Doubles	Twins	1 Bedroom	2 Bedrooms
1 Detroit-Leland	\$7.50-13.50	\$10.50-16.00	\$12.00-19.00	\$25.00-35.00	\$38.50-50.50
2 Henrose	6.50-10.50	9.00-13.50	12.50-16.00	25.00	45.00
3 Pick-Fort Shelby	6.00-12.75	9.00-15.50	10.50-16.25	23.00-43.50	39.75-58.75
4 Sheraton-Cadillac (Headquarters Hotel)	8.50-18.00	14.35-20.50	14.85-23.00	29.00-37.50	46.00-56.00
5 Shaller Hilton	7.00-13.50	12.50-17.00	14.00-24.50	38.00-44.00	59.50-97.00
6 Tuller	5.00- 9.00	9.00-12.00	10.50-15.00		
7 Wolverine	6.00- 9.00	8.50-10.00	11.00-18.50	25.00	35.00-45.00

APPLICATION FOR HOTEL ACCOMMODATIONS

MAIL TO: Housing Bureau, AVMA
Detroit Convention and Tourist Bureau
626 Book Building
Detroit 26, Michigan

CHOICES OF HOTELS: 1st CHOICE: HOTEL _____ 2nd CHOICE: HOTEL _____
3rd CHOICE: HOTEL _____ 4th CHOICE: HOTEL _____

ACCOMMODATIONS DESIRED:

RATE DESIRED:

_____ Room(s) with one bed for one person (Single) \$ _____ to \$ _____
_____ Room(s) with twin beds for two persons (Twin) \$ _____ to \$ _____
_____ Room(s) with one bed for two persons (Double) \$ _____ to \$ _____
_____ Suite(s) parlor and one bedroom \$ _____ to \$ _____
_____ Suite(s) parlor and two bedrooms \$ _____ to \$ _____

ARRIVAL TIME: Date _____ Hour _____ DEPARTURE TIME: Date _____ Hour _____

LIST NAMES OF ALL PERSONS WHO WILL OCCUPY EACH ROOM:

Name	Street Address	City and State

CONFIRM RESERVATION TO: NAME _____

NAME OF COMPANY _____

STREET ADDRESS _____

CITY _____ ZONE _____ STATE _____

July 1, 1961

151

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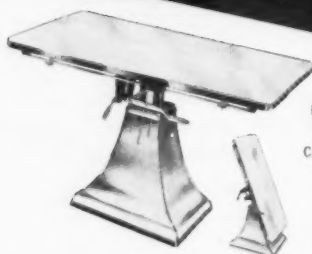
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Coming Meetings

Notices of coming meetings must

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July, 1961

Mississippi-Louisiana Veterinary Medical Associations. Bi-state annual meeting. Buena Vista Hotel, Biloxi, Miss., July 2-4, 1961. Dr. J. W. Branson, Box 4223, Fondren Station, Jackson, Miss., secretary; or Dr. R. B. Lank, 246 Guava Dr., Baton Rouge, La., executive secretary.

Nebraska Veterinary Medical Association. Annual summer and clinical demonstration meeting. Town House, Omaha, Neb., July 10-12, 1961. Mr. Bob Garey, Hotel Clarke, Rooms 18-419, Hastings, Neb., executive secretary.

Arkansas Veterinary Practitioners Association. Aronelle Motel, Hot Springs, Ark., July 16-18, 1961. Dr. James B. Roberts, Booneville, Ark., secretary.

Kentucky Veterinary Medical Association. Fiftieth annual meeting. Sheraton Hotel, Louisville, Ky., July 17-18, 1961. Dr. L. S. Shirrell, 545 E. Main St., Frankfort, Ky., secretary.

Auburn University. Fifty-fourth annual conference for veterinarians. Auburn University, School of Veterinary Medicine, Auburn, Ala., July 23-26, 1961. Dr. J. E. Greene, dean.

August, 1961

International Association of Milk and Food Sanitarians. Golden anniversary meeting. Wanderer Resort Motel, Jekyll Island, Ga., Aug. 14-17, 1961. T. L. Jones, Room 312, 1145 Nineteenth St., N.W., Washington 6, D.C.

American Association of Veterinary Bacteriologists. Annual meeting. Department of Microbiology and Public Health, College of Veterinary Medicine, Michigan State University, East Lansing, Mich., Aug. 18-19, 1961. C. H. Cunningham, Department of Microbiology and Public Health, College of Veterinary Medicine, Michigan State University, East Lansing, secretary.

American Veterinary Medical Association. Ninety-eighth annual meeting. Sheraton-Cadillac Hotel, Detroit, Mich., Aug. 20-24, 1961. Dr. H. E. Kingman, Jr., 600 S. Michigan Ave., Chicago 5, Ill., executive secretary.

International Association of Microbiological Societies. Seventh International Congress of the Permanent Section on Biological Standardization. London, England, Aug. 28 to Sept. 1, 1961. E. C. Hulse, Ministry of Agriculture, Central Veterinary Laboratory, Weybridge, Surrey, secretary of organizing committee.

Electron Microscope Society of America. 19th annual meeting. Pittsburgh Hilton Hotel, Pittsburgh, Pa., Aug. 23-26, 1961. Dr. A. R. Taylor, Research Division, Parke, Davis and Co., Detroit 32, Mich., program chairman.

September, 1961

Robert A. Taft Sanitary Engineering Center. Training Program on Milk Pasteurization Controls and Tests. Cincinnati, Ohio, Sept. 12-14, 1961. Chief, Training Program, Robert A. Taft Sanitary Engineering Center, 4676 Columbia Parkway, Cincinnati 26, Ohio.

Continued on page 154.

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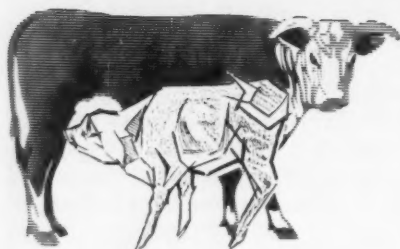
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Coming Meetings—continued from page 152.

Animal Care Panel. 12th annual meeting. Statler Hilton Hotel, Boston, Mass., Sept. 27-29, 1961. Dr. Bernard F. Trum, Sherborn, Mass., general chairman.

Oregon Veterinary Medical Association. Fall clinic meeting. Corvallis, Ore., Sept. 28-30, 1961. Dr. K. J. Peterson, Office of the Secretary, Poultry-Veterinary Building, Corvallis, Ore., program chairman.

October, 1961

New England Veterinary Medical Association. Annual meeting. Poland Springs Hotel, Poland Springs, Maine, Oct. 1-4, 1961. Dr. C. Lawrence Blakely, 180 Longwood Ave., Boston, Mass., secretary.

Purdue University. 49th annual conference for veterinarians. Purdue University, School of Veterinary Science and Medicine, Lafayette, Ind., Oct. 5-7, 1961. Dr. Erskine V. Morse, Purdue University, School of Veterinary Science and Medicine, Lafayette, Ind., dean.

Symposium on Recent Developments in Research Methods and Instrumentation. 11th annual instrument symposium and research equipment exhibit. National Institutes of Health, Bethesda 14, Md., Oct. 9-12, 1961. Mr. James B. Davis, National Institutes of Health, Bethesda 14, Md., executive secretary.

Eastern Iowa Veterinary Association. Annual meeting. Sheraton Montrose Hotel, Cedar Rapids, Iowa, Oct. 12-13, 1961. Dr. William R. Goodwin, Newhall, Iowa, secretary.

Illinois Veterinary Medical Conference and Short Course. University of Illinois, Urbana, Oct. 19-20, 1961. Dean C. A. Brandy, College of Veterinary Medicine, University of Illinois, Urbana, Ill.

Gaines Symposium. University of Illinois, Urbana, Ill., Oct. 20, 1961. Mr. Harry Miller, Gaines Dog Research Center, 250 Park Ave., New York 17, N.Y., director of the Dog Research Center.

Midwest Feed Manufacturers' Association. Centennial Nutrition conference, Kansas City, Mo., Oct. 21-23, 1961. Fennell-Gibson Public Relations, 2201 Grand Ave., Kansas City, Mo.

California Veterinary Medical Association. Annual meeting. Long Beach, Calif., Oct. 23-25, 1961. Mr. Kenneth Humphreys, 3004 Sixteenth St., Rooms 301-303, San Francisco 3, Calif., executive secretary.

Missouri, University of. 37th annual veterinary conference. Columbia, Mo., Oct. 30-31, 1961. Dr. Cecil Elder, Department of Veterinary Pathology, School of Veterinary Medicine, University of Missouri, Columbia, Mo., chairman.

National Association of Federal Veterinarians. Annual meeting. Curtis Hotel, Minneapolis, Minn., Oct. 31, 1961. Dr. F. L. Herchenroeder, Box 3085, Parkfairfax Station, Alexandria, Va., secretary.

Foreign Meetings

7th International Congress of Biological Standardization. Permanent Section of Biological Standardization of the International Association of Microbiological Societies. Wellcome Foundation Ltd., the Wellcome Building, Euston Rd., London N.W. 1, England. E. C. Hulsa, Ministry of Agriculture, Central Veterinary Laboratory, Weybridge, Surrey, secretary of organizing committee, Aug. 28-Sept. 1, 1961.

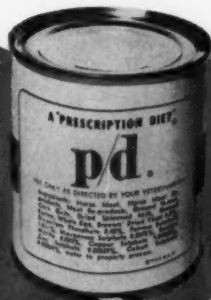
Continued on page 156.

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Coming Meetings—continued from page 154

Twelfth World's Poultry Congress. Show Grounds of the New South Wales Royal Agricultural Society, Sydney, Australia, Aug. 13-18, 1962. Dr. Cliff D. Carpenter, chairman, U.S. Participation Committee, 1207 Emerald Bay, Laguna Beach, Calif.; Dr. A. William Jasper, secretary, c/o AFBF, 2300 Merchandise Mart, Chicago 54, Ill.

Regularly Scheduled Meetings

The following regularly scheduled meetings were omitted from the June 15 JOURNAL:

HAWAII—Honolulu Veterinary Society, the fourth Tuesday of every other month. Dr. Charles B. Webster, Blue Cross Animal Hospital, Honolulu, Hawaii, secretary.

IOWA—Central Iowa Veterinary Medical Association, the third Monday of each month, 6:45 p.m., Breeze House, Ankeny, Iowa. Dr. C. D. Lee, Iowa State University, Ames, Iowa, secretary.

NEVADA—Clark County Veterinary Medical Association, the last Wednesday of each month, Las Vegas, Nev. Dr. Joseph I. Leveque, 2631 S. Highland Dr., Las Vegas, Nev., secretary.

NORTH CAROLINA—Western North Carolina Veterinary Medical Association, the third Thursday of each month, The Manor, Asheville, N. Car. Dr. J. A. Humphrey, 1093 Patton Ave., Asheville, N. Car., secretary.

OHIO—Kokosing Valley Veterinary Association, the third Wednesday of each month. Dr. Edward L. Bowlus, 64 W. Sandusky St., Fredericktown, Ohio, secretary.

PENNSYLVANIA—Lehigh Valley Veterinary Medical Association, the first Thursday of each month, 2:00 p.m. Dr. Robert N. Warner, Palm, Pa., secretary.

TEXAS—Dallas County Veterinary Medical Association, the second Tuesday of each month. Dr. Eldon O'Harrison, 733 Floyd Rd., Richardson, Texas, secretary.

VIRGINIA—Central Virginia Veterinary Association, meetings monthly. Dr. Abraham Linder, P.O. Box 8526, Richmond, Va., secretary.

Northern Virginia Veterinary Society, the second Wednesday of January, April, July, and October, 9:00 p.m., Professional Building, Falls Church, Va. Dr. Justin Harvey, P.O. Box 476, Fairfax, Va., secretary.

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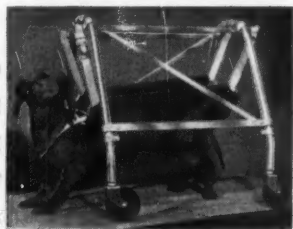
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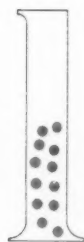
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1. Newberne, J. W., et al.: Recent Studies on the Properties of a Nonvirulent Living Hog Cholera Vaccine, 62nd Annual Proceedings, U. S. Livestock Sanitary Association, 1958, pages 278-289.

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Clinical and Research References:

1. Sinha, S. K., et al, Studies on Canine Distemper Immunization with a Tissue Culture Vaccine. Vet. Med., Vol. 55, No. 4, April 1960.
2. Burgher, J. A., et al, The Immune Response of Dogs to Distemper. Cornell Vet., Vol. 48, No. 2, 1958.
3. Paton, I. M., et al, Progress in Distemper Immunization. Jen-Sal Small Animal Topics, August 1960.
4. Dept. of Biological Research, Jensen-Salsbery Laboratories. Unpublished Research Data.

